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THE OIL WEEKLY

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PUBLISHED BY

THE GULF PUBLISHING COMPANY

HOUSTON, TEXAS

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Member Audit Bureau of Circulation
Member Associated Business Papers, Inc.

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SPECIALIZED OIL JOURNALS

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The Oil Man's Calendar

OCT. 2– 3	West Virginia Oil & Natural Gas Association, Clarksburg.
6– 9	National Safety Congress, Chicago.
9–11	Texas Mid-Continent Oil & Gas Association, Beaumont.
16–17	American Association of Petroleum Geologists, Pacific Section, Los Angeles.
16–18	American Institute of Mining & Metallurgical Engineers, Petroleum Division, Dallas.
20–22	National Stripper Well Association, Tulsa.
20–22	Independent Petroleum Association of America, Tulsa.
30–31	American Institute of Mining & Metallurgical Engineers, Petroleum Division, Los Angeles.
31	California Natural Gasoline Association, Los Angeles.
NOV. 2– 7	American Petroleum Institute, Annual Meeting, San Francisco.
DEC. 3	New Mexico Oil & Gas Association, Artesia.
5	Oklahoma Stripper Well Association, Tulsa.

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Published every Monday. Single Copies 15 cents (Special Issues 50c). Subscription price: domestic and foreign, $2.00 a year; 2 years $3.00. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879. Subscription restricted to those engaged in the producing and pipe line branches of the oil industry or the manufacturing and distribution of oil field supplies. Advertising rates on application.

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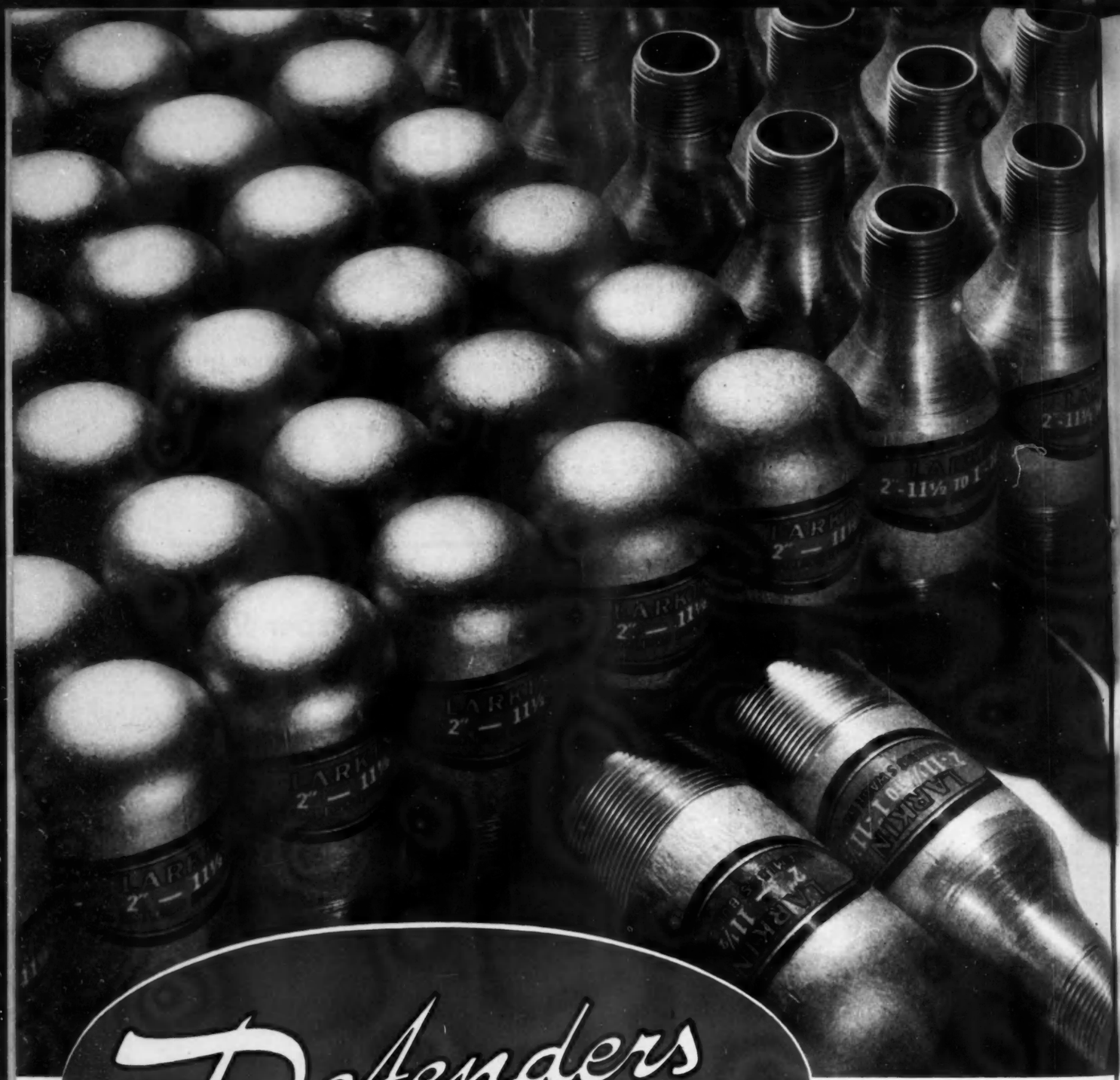

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The Changing Panorama

Test of Authority May Face SPAB

It Is Possible Ickes Will Make Issue on Agency's Decision on Big Line

Having refused steel plate for construction of the "big inch" crude-oil pipe line from East Texas to the East Coast, the new priority and allocation agency, SPAB, may face a severe test of its authority in the first month of its life.

This will be true if Petroleum Coordinator Ickes decides to make an issue of the affair, as anticipated in some quarters. Should Ickes win over the agency, by direct appeal to President Roosevelt, or should the agency reverse its stand, SPAB most likely is finished. For that reason, Ickes may find SPAB pretty stubborn about changing its mind as to the need of the proposed oil carrier.

Big Pipe Line . . .

Various and sundry reasons explaining why SPAB refused steel priorities to the proposed 22- and 24-inch pipe line from East Texas to the Atlantic Seaboard are to be heard.

Some reason it was politics to please several elements that did not want it, including the utilities and coal industries, which figured it would be diverted to natural gas after the emergency and that this would supplant power and coal as industrial fuel. The railroads and marine shipping interests saw competition. All these factions have powerful labor groups. A Texas senator objected because he visioned cessation of industrial migration to the state if its cheap gas fuel was transported elsewhere.

Others believe it was due to belief that the gasoline shortage on the East Coast is not severe and would be met shortly by other means, and some think the industry's arguments regarding its economic and practical feasibility had something to do with it.

All the above elements may have had some influence on SPAB's decision, but the agency's explanation that it required too much steel that could be used to greater advantage elsewhere during the national defense emergency program seems very plausible. Certainly, the line would consume much steel. Its 480,000 tons being almost 0.5 percent of all steel due to be manufactured during the coming 12 months and equivalent to over 40 percent of the normal steel required for conducting the industry's annual drilling program. If diverted to tanker construction, it would provide material for hull and frame fabrication for 150 tankers of 100,000-barrel capacity each, or could be used to make enough casing to case almost 13,000 wells, nearly half of the tests that will be drilled in the United States during the coming year. Moreover, death of the line releases considerable motive power, something like 200,000 horsepower.

Record Pipe Line Runs . . .

More and more crude oil is being moved to East Coast refineries via pipe lines, and the rate is to increase in the future. For the third consecutive month deliveries of crude oil over eastern pipe line systems hit a new peak in August. Nine lines in this group delivered 26,557,000 barrels in August, compared with 25,800,000 barrels in May and only 17,836,000 barrels in August, 1940. Thus the daily rate of delivery by pipe line has increased from 57,000 barrels a year ago to 85,670 barrels currently.

These rates of delivery are due to increase in the future, even should the "big inch" pipe line from East Texas to the Atlantic Coast not be constructed. At least another 25,000 barrels of crude oil is expected to be delivered daily via pipe line within 45 days. This will just about double the delivery rate of eastern pipe lines during the past year, the increase being equivalent to about 12 average tankers even when increased loadings and more efficient service that typify current practices are considered.

Refinery Process Change Looms

Automobile Manufacturers Talking About Using 100 Octane Grade After War

Periodically, it seems, new processes and new consumptive demands render refinery equipment obsolete, requiring the addition of new units or building of new plants. Such an era appears to be looming again.

Post-emergency plans being discussed by the automobile industry, currently engaged in switching from a peace-time to a war-time basis, include the use of higher grade gasoline. It is predicted that 100-octane gasoline probably will be a general thing after the war. This will require many changes in refinery equipment, as current capacity for manufacture of such high-grade gasoline is limited.

The industry's present program of installing 100-octane gasoline manufacturing units for the making of aviation gasoline, will not result in sufficient capacity to fulfill automobile needs — so there must be widespread expansion of such units if the auto makers follow their own predictions.

More Aviation Gasoline . . .

Although the quantity of aviation gasoline manufactured in the United States has consistently been greater than the volume consumed, as indicated by the steady rise in stocks of this commodity, the government wants the oil industry to immediately install a materially enlarged manufacturing capacity.

This is probably based upon the latest production schedule for manufacture of warplanes by the Office of Production Management, which calls for a rate of 50,000 yearly by July, 1942. Thus, military aircraft manufacture of the nation is scheduled to be turned out a little better than double the present rate.

The British and Russian forces also are expected to use more aviation gasoline.

Permanent Station Blackouts

From what was thought to be a temporary emergency measure, a new innovation for the marketing division of the industry may be born that will mean a working day of 12 hours, instead of 16 hours "open for business" which was not unusual in the past. For East Coast filling stations may continue to close at 7 p. m. daily even after the present Atlantic Seaboard gasoline shortage is a thing of the past.

Already Philadelphia retail gasoline dealers have gone on record as planning to shut up shop at 7 p. m. every day even should all restrictions on gasoline consumption and sales be lifted. They point out that operation of stations after this time has proven unnecessary, few, if any, motorists being inconvenienced. Earlier closings reduce overhead, especially electric bills. There has been little dislocation of employment, the 5800 stations in Philadelphia and vicinity reporting that only 42 men lost their jobs as a result of the shutdowns.

Russian Oil . . .

Consistent reports that Germany is preparing for an invasion of Russia's Crimea and Caucasus areas by boat attack from Bulgaria across the Black Sea, is further indication of the Nazis interest in Soviet petroleum fields. This would be a desperate measure, in addition to the hazards of a sea invasion it would place some units of the German army in the most rugged terrain it has encountered as yet, and would be a gamble that any divisions landed successfully would not be cut off or encircled by the Russian forces.

History Repeats . . .

"The present shortage of oil as well as casing gives cause for serious reflection before the issuance of an order which either postpones the production of oil or requires an increase in the amount of casing to be used. On the other hand, the protection of the oil-bearing deposits is prime necessity, particularly in the present stage of national necessity."

The foregoing words are taken from the Third Annual Report of the State Oil and Gas Supervisor of California for the fiscal year 1917-18. They show that the industry was confronted with some of the same problems in the first World War that now faces it.

Junk? . . .

Those forlorn racks of old and dirty used pipe and casing have been taking on new attractions lately. New talley sheets have been made of many feet of pipe, long since dropped from inventories.

Anticipating an actual or potential shortage, considerable pipe has been run through cleaners, the weak spots exposed. Welding has put new metal into pits, built up local wear. Danger zones have been cut from joints and many joints put back in stock against the possibility of a dry-up of regular sources of supply.

Protecting East Texas . . .

Organization of East Texas field workers into units to cope with sabotage, when, as and if it appears, has been perfected with the naming of a supervisor and completion of unit commands to patrol assigned sectors.

Defense against saboteurs, like fire-fighting, is at its peak of effectiveness when applied with the shortest possible elapsed time between the attempt at destruction and its combating. Utilizing the oil field forces bases the units closest to the danger points, and relies upon men who, through daily training in their usual work, are best equipped and outfitted to curb the damage at its outset and, in many cases, to nab the saboteur as well.

SHAKE-OUTS
From The News

Six persons were arrested last week week and charged with violation of Kansas proration laws. Both federal and state officials are investigating conditions in the state, with Judge J. G. Somers, in charge of the investigation, asserting 1,500,000 barrels had been over-produced in the last 4 or 5 years.

»

First large quantity of gasoline to be moved by barge from New Orleans to the East Coast was loaded last week. Six barges were loaded with 72,000 barrels for shipment to Pittsburgh via the Mississippi and Ohio rivers. A tanker, a large towboat and a tug also were due to load for the same destination. Plans call for eventual shipment of approximately 1,600,000 barrels of gasoline monthly.

»

A new shallow-draft, small, radically designed cargo ship powered by 16 or more gasoline engines will be tested next week. With propeller amidship, it can be hoisted up and replaced at sea. Inexpensive and simply constructed, the odd craft can be built quickly enough to offset tonnage lost at sea. It has a range of 7000 nautical miles at 12 knots per hour, and 1500 of its loaded 1900 tons are for cargo.

»

Motorists bought nearly $500,000,000 worth of auto supplies, grease and service jobs, food and beverages, overnight lodging, and a host of other items at service stations in 1939. Thus, more than one sixth of all retail dollar volume of United States service stations in 1939 came from services and items not constituting gasoline.

For the first time in 43 years, boilers are cold at the oldest refinery west of the Mississippi River, Magnolia Petroleum Company having decided to discontinue operation of its Corsicana, Texas, refinery.

»

Imports of petroleum into the United States, including both that for domestic use and bonded for exportation after refining, amounted to 2,029,000 barrels, a daily average of 289,857 barrels, during the week ended September 13. This compared with a daily average of 220,286 barrels for the previous week, and 240,500 barrels daily for the four weeks ended September 13. Most of the importations were crude oil and were delivered on the Atlantic Seaboard.

»

A new plant to process 100-octane aviation gasoline, involving possibly $1,730,000, may be built by Premier Oil Refining Company of Texas at Cotton Valley, Webster Parish, North Louisiana. The National Defense Advisory Commission has issued a certificate of necessity for construction of the unit. Sylvester Dayson, Longview, Texas, is president of Premier; J. R. Parten of Houston is chairman of the board.

»

Contracts calling for government financing of new facilities for producing 40,000 tons of synthetic rubber annually, much of which will be made from petroleum, have been agreed upon and construction of the required plants are expected to be started shortly.

East Coast Consumption Gains Outrank Larger Deliveries

INCREASED consumption of petroleum products is the principal "fly in the ointment" in getting sufficient quantities to the Atlantic Seaboard to meet demand requirements of that area, for movement of petroleum into the region continues well above a year ago. Even shipments by tanker and barge from the Gulf Coast to Eastern ports, the principal supply source and a service generally believed to have reduced drastically by diversion of an estimated 80 boats to British shuttle service, is still delivering more petroleum than did this means a year ago; although down somewhat from its level immediately preceding the shifting of the tankers. Shipments of California petroleum to the Atlantic appear to be the only transportation element to suffer, and this was never a large factor.

The continued moving of larger quantities of oil from the Gulf Coast to the East Coast, despite reduction in tanker fleet, coupled with increased pipe-line deliveries, enlarged movements by tank car and greater imports, means that the Atlantic Seaboard states are getting considerably more petroleum products this year than in 1940. Therefore, were it not for the exceptionally large gain in volumes being consumed in the East there would be no problem of a petroleum shortage in the territory.

But consumption requirements of the East increased materially. Despite shipment of greater volumes into the territory than in 1940, stocks of all oils in the region are 9,000,000 barrels below the level of a year ago. The East's numerous industrial plants are working day and night on defense orders, new users such as Army trucks and tanks are consuming considerable oil, even commercial trucks are busier, and passenger cars are burning more also as more men are given jobs and commute daily between their homes and work. Then, there is the great United States fleet bunkering at points along its coast, and using more oil than previously. These have consumed the enlarged shipments into the territory — and 9,000,000 barrels besides.

Furthermore, Eastern consumption is due to increase even more in the near future, when defense manufacturing attains new peaks and as naval activity intensifies. In addition, winter months bring the East Coast to its heaviest consuming period of the year, consumption in December usually being 20 to 30 percent greater than that of August because of larger demands for heating oil. Ordinarily, the industry has a surplus of tankers during summer months, some of which are idle, but to meet the increased requirements anticipated in the coming winter there are no additional tankers that can be put into service. Consequently, only a more critical shortage looms, unless other means of making up the deficit are found at once.

Movement of petroleum by tanker and barge from Gulf Coast ports to the Atlantic seaboard has been at record peaks in 1941, a total of 295,201,720 barrels having been moved in the first 8 months of the year in contrast with 286,149,000 barrels in 1940. Thus the daily average rate of delivery has been 1,214,821 barrels as compared with 1,177,567 barrels.

Even currently the tanker and barge shipments, despite diversions, are greater from the Gulf Coast to the East Coast than a year ago. In August, according to preliminary figures, a total of 36,405,720 barrels were shipped, or 1,174,378 barrels a day. A year ago the monthly shipments totaled 33,242,000 barrels, or only 1,072,322 barrels per day.

August, 1941, deliveries of Gulf Coast oil by tanker and barge to the East were practically at the same level as in the preceding month, July, and but slightly below June levels.

However, while deliveries to the Atlantic Seaboard from the Gulf Coast in the last three months have been well above year ago levels, they have been considerably below the volume shipped in April, which was previous to the diversion of any tankers. In April, shipments amounted to 38,503,000 barrels, or 1,283,433 barrels daily. Consequently, current movements by tanker and barge are about 109,000 barrels per day, or 2,100,000 barrels per month, less than in April. This has been due to the transfer of tankers, indicating that consumption requirements of the East could just about have been met by the fleet if no diversions had occurred.

Water Movement of Crude and Refined Oil from Gulf Coast to East Coast Ports in 1941

(All figures, which are in barrels, from Petroleum Conservation Division, Department of Interior)

	April	May	June	July	August*	January Through August	
Crude	14,495,000	13,751,000	12,626,000	12,631,000	13,183,213	104,462,213	111,475,000
Gasoline	11,637,000	13,877,000	12,921,000	11,948,000	11,556,745	90,563,745	78,717,000
Kerosene	2,075,000	1,310,000	1,200,000	1,657,000	1,651,395	15,921,395	16,922,000
Distillate Fuel	3,114,000	2,474,000	2,689,000	2,876,000	3,367,602	28,118,602	28,660,000
Residual Fuel	6,316,000	5,149,000	6,228,000	6,382,000	5,533,045	49,701,045	44,933,000
Lubricating Oil	770,000	889,000	854,000	849,000	972,906	5,807,906	4,961,000
Miscellaneous	96,000	92,000	152,000	72,000	140,814	626,814	481,000
Total	38,503,000	37,542,000	36,670,000	36,415,000	36,405,720	295,201,720	286,149,000
Daily Average	1,283,433	1,211,333	1,222,333	1,174,677	1,174,378	1,214,821	1,177,567
Year of 1940:							
Total	35,833,000	36,674,000	34,356,000	34,969,000	33,242,000	.....	.....
Daily Average	1,194,433	1,183,032	1,145,200	1,128,032	1,072,322	.....	.....

* Preliminary figures.

Washington Roundup

Possibility of using seamless pipe for Texas-East Coast carrier studied, as SPAB again refuses steel plate . . . Standard will reverse flow of Tuscarora line . . . Ickes predicts those contending no shortage exists will "eat words"

By B. F. LINZ, Washington Correspondent

WITH hopes for quick construction of the national defense pipe line dimmed, prospects of serious shortages of gasoline and fuel oil on the East Coast increased during the week despite the recent finding of the Senate investigating committee that the only deficiencies were in storage stocks.

Defense officials admitted that there is no chance of the long pipe line being completed next spring, as originally planned, under the refusal of the Supply Priorities and Allocations Board to grant a preference to the plate steel needed.

It is probable, however, that construction of the line may begin with seamless tube, if arrangements to get that product can be worked out, particularly as the Reconstruction Finance Corporation has earmarked $56,000,000 to be advanced toward the $80,000,000 construction cost.

The shortage situation continued confused. Government officials, privately discussing it, admitted that with the use of all available and prospective transportation facilities enough oil can be brought to the coast area to meet present demand, but pointed out that during the winter, while gasoline demand recedes but slightly, if at all, the need for heating and fuel oils increases and questioned how, if all facilities are in use now, possibly as much as 25 percent more can be transported.

Efforts to settle the Department of Justice campaign against the pipe lines for alleged rebating in violation of the Elkins Act, almost successful, struck a new snag when Phillips Pipe Line Company asked the Interstate Commerce Commission to reclassify it as a private carrier.

The 1941 revenue bill, just passed by Congress, will impose heavier taxes on oil companies and other taxpayers but, more important, new legislation will be brought to the Capitol shortly, designed to streamline the administrative provisions of the revenue code, which may call for a re-statement of the depletion allowances.

Now merely in the stage of discussion, there has been no indication how that question will be dealt with, if at all, but that it may be included in the measure was indicated by suggestions during the consideration of the 1941 bill that this section of the law could well be revised.

Pipe Line

With all hope of construction of the Texas - New Jersey "national defense pipe line" by next spring blasted by the repeated refusal of SPAB to grant a priority for steel plate, defense officials this week were studying the possibilities of securing seamless tube, under a promise that its use would be permitted if production schedules of the mills could be properly adjusted.

On September 16 SPAB flatly repeated its verdict of the week before that "it is more important in this emergency to provide for ship construction than to insure plenty of gasoline for pleasure driving on the Eastern seaboard."

Its earlier decision an informal one because no application was pending, the board's action this week was official, taken on requests submitted September 15 by Deputy Coordinator Davies for priorities on approximately 180,000 tons of steel plate and 190,000 tons of seamless steel tube.

The board took the position that steel plate cannot be spared, but looked more favorably upon the request for seamless tubing. Billets from which the tubing is extruded are not under as heavy demand as steel plate, and studies have indicated that it would be possible to produce enough tube for at least part of the line without upsetting defense requirements if production schedules were properly adjusted to defense contracts in the tube mills.

SPAB officials requested OPM to make a further study of the project to determine whether, if sufficient seamless tube is released, the necessary pumps, valves, motors and other accessories can be produced fast enough to be ready for use when tube deliveries are made.

At the same time, SPAB indicated that if the line is started with seamless tube, the situation will be reviewed in the spring and, if conditions then allow, steel plate will be released. Thus, there was in prospect a line constructed in part from seamless tube and in part from steel-plate pipe.

Officials of the coordinator's office said that if seamless tube is used the time of construction of the 1820-mile pipe line will be doubled—16 months against the 8 months originally figured for plate steel—and it will not be possible to put it into operation before 1943.

At his press conference September 18, Harold L. Ickes said he "couldn't explain" SPAB's refusal to grant the priority.

"We advocated a priority that would make it possible to build this pipe line so we could have some assurance that eight months hence we would be better off than without the pipe line," he commented.

But, he added, it is up to the priorities board to decide and, he indicated, he plans no appeal over the board's head to the President.

At the same time, he has not abandoned the idea of the line and may make further representations to SPAB "if there is any hope of prevailing" and will make a careful investigation of the time required to build it with seamless steel.

Pipe Money

The federal government stands ready to advance $56,000,000 toward the construction of the proposed Texas-New Jersey crude oil pipe line, it was disclosed September 16 in a report to Congress by Jesse Jones, Federal Loan Administrator.

That sum, it was disclosed, has been approved by the Reconstruction Finance Corporation as one of a number of commitments for national defense totaling more than $194,000,000.

The report also revealed that, at the request of the National Defense Advisory Commission, the Defense Supplies Corporation, one of a number of RFC subsidiaries, made arrangements for financing the purchase of 7,500,000 barrels of 100-octane aviation gasoline to cost approximately $50,000,000 and 10,000,000 gallons of toluol to cost approximately $3,250,000, which were abandoned when the OPM canceled the advisory commission's recommendations.

Reverse Flow

Meanwhile, Deputy Coordinator Ralph K. Davies announced "another step in the comprehensive program" for relieving the East Coast, by the reversal of the Tuscarora pipe line to bring crude oil into the New York area instead of carrying refined products westward as heretofore.

The line, owned by Standard Oil Company of New Jersey, runs between Bayway, New Jersey, and Midland, Pennsylvania, on the Ohio River. With a capacity of 32,000 barrels of refined products daily, it will deliver 25,000 barrels of crude oil a day when the flow is reversed, the oil to be delivered to Midland principally by barges.

Reversal of the line will cost between $250,000 and $300,000 because of the necessity for relocating pumping stations, and will require 30 to 60 days for completion. It will be the second time the line has been reversed, it having been built originally as a crude oil line to tap lines from the Mid-Continent. With the shift to tanker transportation in the early twenties, operations were discontinued for five years, and in 1930 it was converted into a products line.

Ickes Says

He is not going to resign, either as Secretary of the Interior or Petroleum Coordinator, thereby squelching recurring rumors of his impending departure from the Washington scene and at the same time answering the demand of Minority House Leader Joseph W. Martin of Massachusetts that he relinquish his post as oil "czar."

He has no comment on reports the British are asking more tankers.

The heavy-oil situation on the East Coast is "bad" and some consumers now are unable to get supplies or even to get contracts.

No large additional supplies can be brought to the East Coast by reversal of pipe lines but, nevertheless, every possible pipe line will be reversed. There are only three or four lines. Some lines already have been reversed, and the companies have been asked to reverse the others.

"They are going to reverse p.d.q. or they are going to be told to reverse. I want to work in cooperation with the oil companies and do not want to be arbitrary unless necessary, but if necessary I can be as arbitrary as some people not connected with the coordinator's office."

The companies are carrying out their pledge to make use of tank cars but no figures are available yet on the new railroad movement.

There is no foundation for any suggestion that the companies have invoked the theory of scarcity because they could make larger profits by closing filling stations at night.

Tanker Differences

Davies also made public the text of a letter to Rear Admiral Emory S. Land, chairman of the Maritime Commission, regarding 26 Italian, German and Danish tankers in South and Central America, which the chairman had said, in his appearance before the Senate investigating committee, could be made available within two months to make up approximately half of the deficit in tanker facilities on the Atlantic Coast. Davies had referred to the letter in his last testimony before the committee, but had not given its details.

The letter revealed that the coordinator's office had not been able to identify the vessels referred to by Admiral Land, and that at last reports it had showed only 17 Italian tankers immobilized in Latin American ports and no German or Danish tankers.

Seven of nine of these tankers were in Mexican ports and have already been placed in service and one of the remaining two was damaged and scuttled.

Of six tankers in Venezuelan ports, one is grounded but can be repaired; another was grounded with undetermined bottom damage and cargo fuel tanks leaking; one was fired and a total loss, and the other two fired but possibly repairable. Two tankers in Colombia are serviceable but in need of drydocking.

"It would appear from the above that seven of the 17 foreign-flag tankers which were immobilized in South and Central American ports already are in use and that, of the remaining 10 vessels, only 3 are undamaged or in serviceable condition, and 7 may require extensive repairs before they can again be placed in operation," Davies wrote.

"It may be noted also that of the 5 Italian, German and Danish tankers previously immobilized in United States ports, the 2 Danish ships already are in operation and the 3 other tankers are undergoing repairs. As stated in your testimony, the French tankers immobilized at Martinique and in the United States have not been taken into account.

"It would be appreciated greatly if you would have the above statements reviewed, in order that we may know the exact status of each of these vessels and the extent to which each of them may be taken into account in determining the service which may be expected from them in transporting oil to the Atlantic Coast area or other regions of the Western Hemisphere."

Shortage

Predicting that those who contend no petroleum emergency exists on the Atlantic Coast may have to "eat their words" within six months, Petroleum Coordinator Harold L. Ickes returned to Washington from a rainy vacation in the Northwest.

Almost his first stop, he went to the White House where, presumably, he told President Roosevelt how he views the situation, which a special Senate committee a few days earlier had said could be cleared up satisfactorily by the use of tank cars and other transporta-

tion rearrangements which have been or will be made.

As he returned to Washington, a demand for his removal was being voiced by Representative Joseph W. Martin, Jr. (R., Mass.), minority leader of the House, who declared that the Senate committee's report showed that "Ickes and Davies have been, to put it mildly, grossly incompetent."

There also were rumors that members of the Senate committee were rather anxious to confer with Ickes to secure some information regarding his activities, and might reopen their hearings.

Declaring he had no comment to make on the report of the Senate committee, Coordinator Ickes on September 18 said "I will let the facts speak for themselves."

Time, he said, will tell whether he or the committee is right.

There will be no lifting of the curtailment program, however—"certainly not in view of the figures."

Those figures, he said, showed that while deliveries on the East Coast dropped 11.4 percent during the week ended September 12 and were 8.4 percent below the week ended July 18, when periodical reports were instituted, API figures showed a drop of 565,000 barrels in gasoline stocks for the latest week following a decline of 458,000 barrels in the preceding period, and carrying stocks to 2,700,000 barrels, or 12½ percent, less than they were a year ago.

Gasoline deliveries in the Middle Atlantic states showed the greatest drop for the week, 12.4 percent, while New England reported a reduction of 11.8 percent and the South Atlantic area 9.2 percent.

Asked whether the East is getting to the point of actual rationing, Ickes made it plain he was reluctant to take any action along that line.

"I do not want to say that," he protested. "Rationing of gasoline is very difficult and intricate, almost impossible of equitable administration, and I would take it only as a very last restort and we aren't there yet." However, he admitted, "it is possible we will get there."

Ickes defended a shortage in stocks—said by the Senate committee to be the only "shortage" existing—as fully as important as a shortage in supplies. The difference between supply and demand is a widening segment. "It doesn't mean that the full demand for gasoline may not be filled, but it is just common sense that when you see that widening you try to make the thing in the end as little burdensome as possible."

The shortage situation is not under control, he added, and whether it can be brought under control depends upon whether sufficient oil can be brought into the area.

However, he said, he has no intention of asking the committee to reopen its hearings so that he may present his views.

At the same time, he cautioned, there is a possibility that the curtailment, now 10 percent, may be increased to 15 percent and "if we don't get the pipe line the reduction may be considerably in excess of 15 percent before we are through."

Pennsylvania Prices

Pennsylvania producers will meet with Leon Henderson and other officials of the Office of Price Administration September 24 for a discussion of crude prices with a view to getting further action on the OPACS order of August 23, eliminating a 23- to 25-cent increase in crude oil prices and setting $2.75 per barrel as the "ceiling" for Bradford crude oil.

The producers, who have been contending that the top price is insufficient to cover increased production costs, are expected to arrive in Washington armed with definite data on costs, as a basis for a request for reconsideration of the order.

Tanker Rates

Revision of tanker time-charter rates will be announced by the Maritime Commission October 1, the general expectation that they will be markedly upward.

The commission has had the matter under consideration for several weeks, and now is completing its revised scale which, officials said, is in conformity with long-established policy of maintaining charter and cargo rates at as reasonable a level as possible, in order to prevent any inflationary influence on commodity prices.

The tanker pool committee recently set up by the commission and the coordinator's office also was said to be working on the problem of reallocating East Coast tonnage to meet complaints of companies which own no tankers that they are unable to secure shipping space. Representations have been made to the committee that as a result of tanker diversions, most of the tonnage remaining is being used by the owners for the transportation of their own oil and companies which have depended upon chartered bottoms are unable to get any ships.

Lawsuit

The exigencies of the national defense overshadowed the fixity of the anti-trust laws September 16 as the top officials of 60 oil companies met with equally high officials of the Department of Justice in an effort to iron out the conflict between the government and the industry.

At stake, from the industry's side, was some $1,750,000,000 claimed in damages by the department for violations of the law; from the government's position, construction of the Texas-New Jersey pipe line, impossible of achievement so long as the companies which are to participate in its financing and building are menaced by the litigation.

To pave the way for the pipe line, Assistant Attorney General Thurman Arnold, Administration trust-buster, reportedly was prepared to offer the industry a peaceful solution of the problem.

Under discussion, it was said, was a proffer by Arnold to enter consent decrees which would dispose of three suits already instituted and eliminate 57 others which the government has planned in a comprehensive program to clean up the industry.

Company officials were represented as quite willing to make an out-of-court settlement; only issue in controversy was the terms which the government would accept. A subject properly of negotiation, the final outcome, it was said, would be terms well within the capacity of the industry to meet.

Following the conference it was reported that a proposed consent decree submitted to the department through a company attorney after comany heads met for discussion of the situation was held up by reason of a sudden move of Phillips Pipe Line Company in asking the Interstate Commerce Commission to declare it a "private" rather than a "common" carrier.

The proposed agreement was said to meet the government's de-

[*Continued on page 52*]

Oil Companies Expanding East Coast Transportation Facilities

OIL companies are expanding and changing established practices at great cost to move greater quantities of petroleum to the East Coast. Tank cars to carry products from Mid-Continent and Gulf Coast points to the East are being utilized more extensively, a development to become accelerated now that rail tariffs are lower. New pipe lines and changes in existing systems, increased barging and more efficient tanker handling are also in the picture. Improvements of this nature to date have assisted materially in meeting the exceptionally heavy consumption requirements of the Atlantic Seaboard states, and expansion and changes already planned will render additional assistance.

The nature of what the industry is doing is indicated by recent transportation changes reported to the office of petroleum coordinator by some companies serving the East Coast states, and which are outlined below.

Atlantic Refining Company

The Atlantic Refining Company is taking crude oil by tank car from Benton, Illinois, to its Philadelphia refinery. Car shipments at present are over 5000 barrels daily and are expected to reach a daily rate of 10,000 and employ a fleet of 600 cars. By December the company will have in operation a new terminal on the Delaware River for discharging tanker cargoes. This development will obviate need for tanker navigation on the Schuylkill River, since oil will move by pipe line from the terminal to the refinery. The company estimates that the above two moves will save tanker transportation by about 26,700 barrels per day.

Pan American Petroleum

Pan American Petroleum & Transport Company, with its refineries and its marketing agency, American Oil Company, has a program expected to save about 260 tanker days per year. In the Gulf Coast area this company is finishing a new 28-car loading rack from which gasoline will be shipped from the refinery at Texas City, for the first time in lieu of tankers. Plans for the present call for use of 1000 tank cars hauling at the rate of about 420,000 barrels per month to the Eastern seaboard.

Also, in place of tanker shipments of gasoline from Texas City to Philadelphia and thence by pipe line to eastern Pennsylvania markets, large quantities are being shipped by barge up the Mississippi and Ohio rivers to Charleston and Pittsburgh. Since July this movement has risen from 35,000 to 77,000 barrels monthly, and should rise soon to 100,000 barrels. Pan American has chartered a small lake tanker to haul Texas City products to Tampa and Port Everglades, Florida, and has ordered an additional storage tank for Tampa with a view to eliminating Port Everglades.

To shorten the usual tanker haul from Texas City to Albany, New York, Pan American tankers have begun to discharge products from tankers into barges at Cartaret, New Jersey, the oil then being barged to the company's Albany terminal for Erie Canal points. The company is using 500 tank cars to move Bunker C fuel from its Destrehan, Louisiana, refinery to Georgia and Florida and, later, probably to points farther north. Formerly this fuel went out by tanker. Car movements are from 20 to 25 cars per day. Barges are being chartered to take asphalt from Destrehan to Tampa. Gasoline and crude oil are also being barged from Texas City to the Destrehan refinery. The company has increased its practice of buying some products, particularly kerosene, locally in western Pennsylvania and in the southeastern states in order to cut tanker shipments from Texas City. In all sections trucks are being used extensively and the volume may be increased. The company plans in a month or two to supply northern Florida and western Georgia from a West Florida port largely to eliminate tanker hauls from Texas City to Jacksonville and Savannah.

Socony-Vacuum Oil Company

Socony-Vacuum Oil Company, by greater use of tank cars and barges and a general readjustment of transportation facilities, has reduced coastwise tanker shipments by at least 16,000 barrels daily. Current plans would raise this figure by about the same amount. Existing and contemplated changes will mean a reduction of 23 percent in the company's normal coastwise tanker shipments of 135,000 barrels daily. In July the company withdrew two of its Mississippi River barge units having a total capacity of 100,000 barrels, and has since then used these steadily in hauling products from the Gulf Coast to Pittsburgh at a 3000-barrel-per-day rate. Tank cars are being used partly to replace the barges formerly in the Mississippi service. This company has eliminated steamer delivery to Albany and is trans-shipping products in New York into barges running to Albany. Earlier this year the company began barge deliveries of crude from Buffalo to its Brooklyn refinery via the Erie Canal and Hudson River. The present daily movement of over 6000 barrels may be changed to tank cars during part of the winter. Increased tanker speed in the coastwise fleet has resulted in an increased delivery rate of 5500 barrels per day of products to the East Coast.

Socony-Vacuum Oil Company had planned to install equipment to handle crude oil in tank cars via the Erie Railroad yards in Jersey City, but the government several weeks ago took over the yards for war material. The company is working

out a substitute plan, however. The company is preparing to ship Oklahoma crude by tank car to its Paulsboro refinery. Plans to buy gasoline in the southwest for the company's Midwest markets will release Midwest gasoline for shipment to the East. The company is barging gasoline over the Mississippi and Ohio rivers to Pennsylvania for trans-shipment by pipe line to the East Coast.

Standard Oil Company

Standard Oil Company (New Jersey) is turning extensively to tank-car and pipe-line shipments. In July the company started moving East Texas crude oil to Bayway refinery by pipe line. The oil was taken from Texas to Wood River, Illinois, then taken to Lima, Ohio, and at Lima cars picked it up for Bayway. Tank car movements of 30,000 barrels daily are soon expected. At present, tank car movements consist daily of about 2000 barrels of crude from Lima, 14,000 from Martinsville, Illinois, 4000 from Owensboro, Kentucky, and 4000 from Omaha, Illinois. Increased crude shipments by pipe line are moving into Bayonne. Daily receipts of 7000, 11,000 and 7000 barrels have been arriving over the Southern Circuit, National Transit and Tide Water lines respectively. The total increase in crude oil receipts by rail and pipe line of the company amounts to about 49,000 barrels per day at present. These are to be increased within the next 45 days, according to Deputy Coordinator Davies, by reversal of flow in the Tuscarora gasoline pipe line at a cost of $250,000 which will be able of moving 25,000 barrels of crude oil across Pennsylvania to its Bayway refinery. The company has arranged barge movements of products from Baton Rouge to points on the Ohio River and trans-shipments inland by pipe line and rail. The company expects to receive this year seven new barges of 8100 barrels capacity each. These are to be used to carry products from the Gulf Coast refineries up the Mississippi for delivery in West Virginia and Pennsylvania. During the last six months of this year the company expects to have diverted about 1,000,000 barrels of products from tanker and pipe line to barge deliveries.

In another move to reduce tanker requirements Standard Oil Company of New Jersey has replaced shipments of Venezuelan oil to the Sarnia, Canada, refinery of Imperial Oil Company by crude from the Mid-Continent and Illinois fields. Formerly Venezuelan crude has been arriving by tanker in Philadelphia for pipe line delivery to Sarnia. The refinery at present is taking Mid-Continent and Illinois crude at about 25,000 barrels daily.

A major undertaking is, of course, construction of the 236-mile pipe line from South Portland, Maine, to Montreal, Canada, which will handle from 50,000 to 60,000 barrels of South American oil daily and save 10 to 12 days in former tanker trips up the Atlantic and into the St. Lawrence River. Completion of this line is expected late in October. Standard Oil Company of New Jersey is one of the companies building the 80,000-barrel-per-day Plantation Pipe Line Company line from Baton Rouge to Greensboro, North Carolina. General moves taken by the company consist of converting Bayway refinery units to coal instead of fuel oil with an estimated saving of 1,000,000 barrels of fuel oil per year, building of 13 tankers with a total capacity of 1,871,000 barrels and scheduled for delivery in 1941, 1942 and 1943, increased loading of tankers, and a general expansion of loading, unloading and storage facilities.

The Texas Company

The Texas Company, although still working out new plans for coping with the tanker shortage, has taken various steps. Formerly, the company was supplying western and upper New York state by Gulf tankers to the upper Hudson, where products were transferred to barges for movements into the Erie Canal and Lake Ontario points. Recently, New York state west of Utica has been supplied from the company's Lockport, Illinois, refinery via the Great Lakes to Buffalo and from Buffalo by barge through the Erie Canal. The company's Great Lake marine equipment has been moved to Buffalo, which makes necessary tank car shipments from Lockport to the lower Michigan and northern Ohio points previously supplied by water terminals at Bay City, Grand Haven and Detroit, Michigan, and Cleveland, Ohio.

The Texas Company plans to barge gasoline from its Lawrenceville, Illinois, refinery to western Pennsylvania markets to replace products normally supplied from tanker terminals on the East Coast. To provide the necessary barges, Tennessee River barge deliveries from Lawrenceville to Tennessee and northern Alabama have been discontinued, these areas being supplied by tank car from Gulf terminals which in turn are supplied by barges from Texas. The company expects to use tank cars from Lockport to carry gasoline to western New York during winter months.

Shell Oil Company

Shell Oil Company normally supplies most of its Eastern market by tanker from the Houston refinery, but the company has begun shipping products from the Houston plant by tank car as far as Minneapolis. Also, products are moving from the company's New Orleans refinery by barge to the Wood River terminal and Ohio River points. Tank cars are shipping products from Wood River to Mid-Continent markets, replacing pipe line deliveries. The foregoing moves relieve the company's supply situation at Wood River, from which products go by pipe line to Chicago, and Columbus and Toledo, Ohio.

Sinclair Refining Company

Sinclair Refining Company is using pipe lines to carry 4000 barrels per day of crude oil from Illinois to Ravenna, Ohio, where it is transferred to tank car for shipment to Marcus Hook. The company is also taking 1500 barrels per day of Illinois oil by pipe line to Olean, where it is taken by truck to the company's Wellsville refinery. Plans have been made to move several thousand barrels per day of Mississippi oil by tank car from Mississippi to the Marcus Hook refinery.

Tide Water Associated Oil

Arrangements have been perfected by Tide Water Associated Oil Company that increases its pipe line capacity from Western Pennsylvania to the Atlantic Seaboard by 12½ percent. A total of 3500 barrels of crude oil is being moved daily by pipe line from the Southwest, which is equivalent to 1,287,500 barrels annually. The company constructed 44 miles of 8-inch pipe line in California, so one of its West Coast tankers could be transferred to the Atlantic.

Geological Interpretation of

Regional Magnetic Anomalies

In Central and Southern United States

By W. P. JENNY, Consulting Geologist and Geophysicist

DURING the past decade the magnetic method has gradually emerged from a state of almost complete oblivion and assumes today again an important role in geophysical prospecting for oil. This change has been brought about by a number of factors, primarily by a revision of the geological conceptions upon which the interpretation of magnetic anomalies is based. *A sufficient number of by now producing structures or extension of structures have been correctly predicted by magnetics in recent years to prove the soundness of these revised geological conceptions.*

The development of the magnetic method has been seriously handicapped by the erroneous assumption that magnetic anomalies are caused almost without exception by the igneous Basement complex. During recent years it could, however, conclusively be demonstrated that the majority of magnetic anomalies in areas of thick sedimentation are due to the magnetic content of certain sedimentary formations and strata.

Along the Gulf Coast, in the Illinois, in the Forrest City and other basins, we find large regional positive magnetic anomalies, which can only be explained by a regional thickening of relatively shallow magnetic sedimentary beds. Therefore the stratigraphic conception had to be introduced in order to geologically explain the magnetic anomalies in such areas (see inset of enclosed map).

Due to the high magnetic content of certain sedimentary beds the magnetic method is in a position to directly indicate structure within the sedimentary column. Thus, the magnetic results are often closely related to the results of the seismic reflection method, which came into prominence through the circumstance that its results have a direct bearing upon structure within the sedimentary column.

For a proper geological interpretation of local magnetic anomalies it is necessary that the interpreter be familiar with the regional magnetic pattern and interpretation. Besides this general regional information, the enclosed map may in many instances also reveal local information of direct interest to the reader.

The magnetic information presented on the accompanying map (an insert) has been computed from the data published by the U. S. Coast and Geodetic Survey.[1] For a number of states, the writer has previously published magnetic vector maps,[2,3,4] wherein the total vectors are represented in the shape of vector triangles. It is thought that the magnetic information will be more generally understood, if it is presented in the manner adopted for the enclosed map.

In the Gulf Coast, eastern Arkansas and western Tennessee the U. S. Coast and Geodetic information has been replaced by the more detailed results of extensive regional magnetometer surveys made by the writer between 1933 and 1938.

Representation of Magnetic Anomalies

The U. S. Coast and Geodetic Survey has measured the total vertical and horizontal magnetic intensity and the declination in the United States at stations scattered at the rate of one or more to each county. The differences between these measured total vertical and horizontal intensities and the normal intensities, as may theoretically be figured out for each station-site, constitute the magnetic vertical and horizontal anomalies at the respective stations.

The horizontal anomalies are represented on the enclosed map by arrows, which indicate the direction of the anomalous horizontal magnetic vectors; *the arrows in other words, point towards the nearest maxima.* Positive vertical anomalies are represented by black station points, negative vertical anomalies by circles. The lower figure at each station, which is preceded by a plus or minus sign indicates the size of the vertical anomaly in gammas; the figure above is the station number.

The regional magnetic anomalies along the Gulf Coast are represented in the usual way by isogams. In eastern Arkansas and western Tennessee the anomalies are represented by the zero-isogam, four profiles and, printed in red, positive and negative trends.

Structural and Stratigraphic Interpretation of Magnetic Data

Due to the long distances between the stations, the information revealed by this map is essentially of a regional or semi-regional nature.

In areas where the vectors are about parallel to each other over a large distance, we may expect regional positive and negative magnetic trends, at right angles to the direction of the vectors.

If the direction of the vectors varies greatly in any particular area, it is probable that this is due to localized anomalies.

Igneous rocks as well as sedimentary beds may be the source of magnetic anomalies. From the standpoint of an interpretation of magnetic data three regional geologic conditions exist:

a) Regions, where the main magnetic effect is due to the Basement complex, as for example, in West Texas.

b) Regions, where the main magnetic effect is due to magnetic beds within the sedimentary column, as for example, in the Gulf Coastal area.

c) Regions, where the magnetic effects from within the sedimentary column are super-imposed upon a

A Supplement Map

Accompanies this article as an insert, and shows the regional magnetic anomalies of 16 southern and central states of the United States, together with (in red) some of the more important geological interpretations.

strong magnetic effect of the Basement complex, as for example, in large parts of Oklahoma.

Wherever the igneous Basement is relatively shallow and overlain by non-magnetic sedimentary beds, the structural interpretation of magnetic data is fairly simple on a regional scale, though greatly complicated by induced magnetism and petrographic changes on a local scale.

In such areas magnetic regional maxima may as a rule safely be interpreted as regional uplifts of the Basement, and regional minima as regional depressions. In Central and West Texas, for example, the Llano-Burnett Uplift (D) and the Bend Arch region (C) are clearly indicated by regional maxima; the Delaware (V) and Black Shale (W) basins by regional minima. Magnetometer surveys indicate the Inter-Basin Platform (X) as a magnetically strongly positive area.

The regional magnetic data are somewhat more difficult to interpret in regions where the Basement is overlain by strongly magnetic sedimentary beds.

In Figure 1 (inserted drawing on map) it is attempted to schematically explain the possible meaning of the magnetic data in such regions. If the magnetic sedimentary beds are of a constant thickness, the structural interpretation of the magnetic data as indicated in the left half (A) of the picture may be applied. If both structural and stratigraphic conditions (thickening and thinning) of the magnetic beds influence the magnetic field, as shown on the right half (B) of Figure 1, then the greater thickness of the magnetic beds in a syncline may cause a magnetic maximum and the thinning of the magnetic beds on top of an anticline may cause a magnetic minimum.

This latter condition is for example demonstrated in the Gulf Coast, where both the Atchafalaya (J) and Corpus Christi (N) basins are represented by magnetic maxima; or in southern Illinois and western Kentucky, where the Cumberland River Arch (III) is clearly indicated as a negative trend, whereas parts of the western geosyncline of Kentucky and the heart of the Illinois basin (O) are indicated as magnetic maxima.

Some Regional Geologic Features As Revealed by the Magnetic Vector Map

The *Permo-Carboniferous Mountain Chains* comprise the Ouachita and the Wichita mountain systems and represent the main structural feature of the southern and eastern states covered by this map.

In the Wichita system, to which belong the Amarillo, Wichita and Arbuckle mountains, the orogenic forces produced an essentially vertical movement. The Basement complex is strongly folded, together with the overlying sedimentary strata, and igneous Basement rocks penetrate to the surface in many places along the axis of these mountains.

The Ouachita system, to which belong the Marathon, Ouachita and Appalachian mountains, with probable connecting links, are essentially the result of lateral orogenic movements[5] and consist of large overthrust sheets of sedimentaries, including some igneous materials, which have been shoved over a relatively undisturbed Basement complex.

Inasmuch as the igneous Basement complex is a main source of magnetic anomalies, we would therefore expect, on a regional scale, strong magnetic anomalies along the Wichita system of normal folding, and a relatively regular magnetic field along the Ouachita system of big overthrusts.

The magnetic vectors in the area of the Amarillo, Wichita and Arbuckle mountains indicate strong magnetic disturbances and from more detailed magnetometer work, we know that the magnetic picture corresponds closely with the topography of the Basement igneous rocks. Magnetic anomalies in excess of 1000 gammas are found in areas, where the igneous material penetrates to the surface.

The magnetic vectors in the area of the Appalachians, that is in western Tennessee, eastern Alabama and northwestern Georgia, on the other hand, are all lined up in a general northwesterly direction and are largely negative.

The first reversal on a regional scale in the direction of the vectors takes place immediately to the west of the Appalachian chains, where a trend (I) of strongly positive magnetic anomalies is indicated. The magnetic data in all probability indicate an anticlinal uplift in the Basement along the western boundary of the Appalachians and a general dip of the Basement towards the southeast or underneath the overthrust Appalachian chains. The anticlinal Basement trend may have acted as a buttress and stopped the overthrust towards the west.

The igneous material exposed at the surface in east central Alabama and west central Georgia is only slightly positive and in part even strongly negative magnetic, if the U. S. Coast and Geodetic information is correct. In the opinion of the writer, this would indicate that this igneous surface material is not rooted in the Basement complex.

In west central Alabama, trend (I) extends into a large magnetic positive anomaly (A). The vectors of central Alabama and Mississippi all point towards (A), which indicates a regional domal uplift in the Basement complex of considerable proportions.

This uplift may well have formed a corner stone and buttress for the Permo-Carboniferous overthrusts; the Appalachians may swing westwards to the south of this uplift and extend in a northwesterly direction towards the Ouachitas. Other possible buttresses are indicated by the strongly positive magnetic anomalies in the area (B), in which area the known uplifts in the Cretaceous would then indicate a rejuvenation of igneous activity at a later date; by the positive trend (II) along the north edge of the Ouachitas; by the Arbuckles; by the Bend Arch (C); by the Llano-Burnett Uplift (D); by another indicated Basement uplift at (E) and by the Glass Mountains (F).

Thus it appears from the magnetic vector map that the western and northern boundaries of the Permo-Carboniferous overthrusts are indicated by a series of magnetic positive anomalies, which may safely be interpreted as anticlinal trends and domal uplifts of the Basement complex. More detailed and accurate magnetometer surveys would in all probability yield considerable details as to the local structural condition within the overthrust sedimentary beds.

Georgia and Florida

In south central Georgia we notice a magnetic minimum area (G), which indicates a depression in the Basement. Southeastward the Basement rises towards the Ocala Uplift (H). Between the depression in Georgia and the Ocala Uplift a number of positive (anticlinal and negative (synclinal) northeast-southwesterly trends extend through Florida and Georgia. A well drilled north of station 27 along the indicated anticlinal trend

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API Walking Beam Rating, lbs.	15000	18850	18750	24000	24000
Single Reduction Type:					
Peak Torque Rating, Inch lbs. at 20 SPM	124000	170000	238000	238000	303000
Overall Gear Ratio	10.2	9.7	9.4	9.4	9.32
Double Reduction Type:					
Peak Torque Rating, Inch lbs. at 20 SPM	113000	139000	200000	200000	—
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in Georgia encountered granite at 4347 feet. South of the Ocala Uplift the indicated positive and negative trends assume a more easterly or possibly even southeasterly direction. Thus the magnetic vector map would indicate that northwest of the Ocala Uplift the Appalachian trends prevail, whereas south of the Uplift the Antillean trends predominate.

Gulf Coastal Area

In the Coastal Area of Texas and Louisiana the Basement complex lies at a great depth and the overlying, in part strongly magnetic sediments, are in all probability the main source of the regional magnetic anomalies as indicated by the isogam map. If we apply the stratigraphic interpretation in this district as explained on the right side (B) of Figure 1, the positive trends may be interpreted as synclinal and the negative trends as anticlinal.

The Atchafalaya Basin (J), for example, is thus explained as a maximum area, because of the greater thickness of the magnetic beds in the Basin, as compared to the thickness of these sediments along the negative, but anticlinal trend (VII) to the west and trend (IX) to the north and east. In a similar way the other regional magnetic anomalies along the Coast may be explained and this interpretation is sustained to a considerable degree by geological considerations,[6] such as greater frequency of piercement type domes on the platforms between depressions K, L, M or along anticlinal trend IX, for example. Further inland, the structural interpretation must be applied and the positive trends through Conroe (XVI) and Bellville (XII) in all probability are indicative of deepseated anticlinal axes.

Tenn-Ark District

East of the Arkansas valley a number of positive magnetic trends extend in an easterly and northeasterly direction through northeastern Arkansas and western Tennessee. These positive trends may safely be interpreted as anticlinal Basement trends. Thus between Memphis and Covington a regional anticlinal structure is indicated, where Lower Ordovician rocks may be expected to underlie the shallow Tertiary and Cretaceous overburden. Away from this uplift younger rocks may be expected.

South of Jonesboro, northeast Arkansas, a well was drilled to 5000 feet on a strongly positive magnetic anomaly, without encountering igneous material. A well near Blytheville, along a negative magnetic trend, had to be abandoned at 4500 feet on account of a too strong salt-water flow. In as much as salt water and porosity are valued prerequisites for any oil region, this well offers considerable encouragement for this district.

Illinois and Michigan

A thickening of magnetic beds of Pennsylvanian and Mississippian age in the heart of the Illinois Basin (O) is in all probability the reason for a magnetic maximum in this area. Here we must reasonably expect the Basement complex at a considerably greater depth than in the area of the negative, but anticlinal trend (III) in the southernmost part of the state.

Trend (III) apparently extends towards the Ozarks in the west and towards the Cumberland River Anticline in the east. A relatively shallow, thick section of non-magnetic Ordovician limestones and dolomites along the crest of the anticline is, in the opinion of the writer, the cause for the negative magnetic trend. For the same reason we find magnetic negative anomalies in the central area of the Ozarks (Q) and of the Cincinnati Dome (P).

The magnetic vectors in the northern part of Illinois are essentially the result of structural conditions in the Basement; positive trends should be interpreted as anticlinal and negative trends as synclinal.

The LaSalle anticline (IV) offers a type example for a combined structural and stratigraphic interpretation of the magnetic data. Along the northern portion of the anticline the Basement is evidently close enough to the surface to create a positive magnetic trend, corresponding to the anticlinal trend.

As the anticline dips towards the south, it is covered by magnetic Pennsylvanian and Mississippian shales. But due to the anticlinal uplift of the non-magnetic Ordovician, the magnetic shales are thinner along the anticlinal axis than along its flanks and the anticline appears therefore as a negative magnetic trend.

In Michigan large Basement uplifts are indicated by the magnetic vectors in the area of the Howell Anticline (R) at Grand Rapids (S) and in the northwestern part of the state near Beulah (T). The majority of the vectors exhibit either a northeasterly or a northwesterly direction and thus indicate the existence of northwest-southeasterly and of northeast-southwesterly anticlinal trends in the Basement.

General Conclusions

No attempt has been made to exhaustively interpret the magnetic data as contained on the enclosed map. The short discussion of some of the main geologic features and their magnetic expression should, however, sufficiently stress the great value of magnetic data for geologic investigations and should enable the reader to interpret the magnetic data in other regions of interest to him.

With an increasing emphasis laid on *stratigraphic traps* in prospecting for oil, a study of regional Basement trends by magnetics assumes increasingly greater importance, because the majority of such traps will be closely associated with regional and semi-regional structural conditions of the Basement complex.

Regional and local structural conditions, thickening and thinning of beds may bring about rapid lateral variations in over-all seismic velocities.[7] Such structural and stratigraphic conditions below unconformities, for example, may be recognized by a proper interpretation of the magnetic data and possible lateral velocity changes may then be visualized and applied to the seismic interpretation. Thus magnetic surveys may prove to be of assistance in improving the accuracy of seismic interpretations.

Magnetic regional and detailed prospecting is more recently again applied on a wide scale by various companies and independents. The regional magnetic information as contained on enclosed map should prove to be of valuable assistance in such surveys.

References

[1] D. L. Hazard, United States Magnetic Tables and Magnetic Charts for 1925 (and 1935); U. S. Coast and Geodetic Survey, Serial No. 453.

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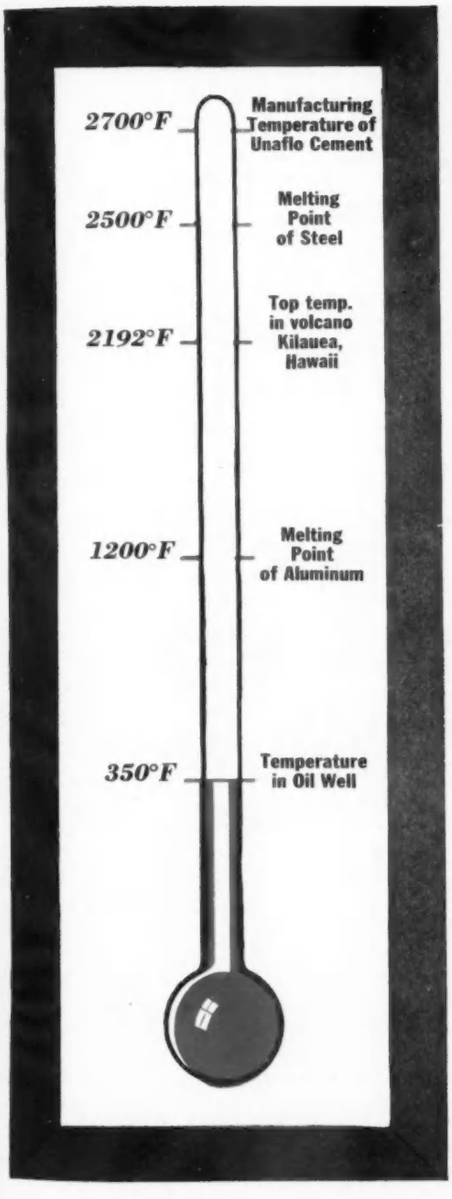

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Improved Unaflo provides a high factor of safety at well temperatures up to and exceeding 350°—at pressures above 7,500 pounds—at depths exceeding 14,000 feet.

Unaflo, the original retarded oil-well cement, has made enviable records in all kinds of cementing jobs—cementing casing, plug-back operations, squeeze cementing, cementing liners, and recementing operations. It has successfully stood the test of use to depths of 14,000 feet and deeper. It has performed successfully under pressures up to and exceeding 7,500 pounds, and at temperatures from 100° to more than 350°F. Because of its retarded set, it has remained fluid and pumpable after unforeseen delays and shutdowns.

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REACTS uniformly with different types of mixing water found on different jobs;

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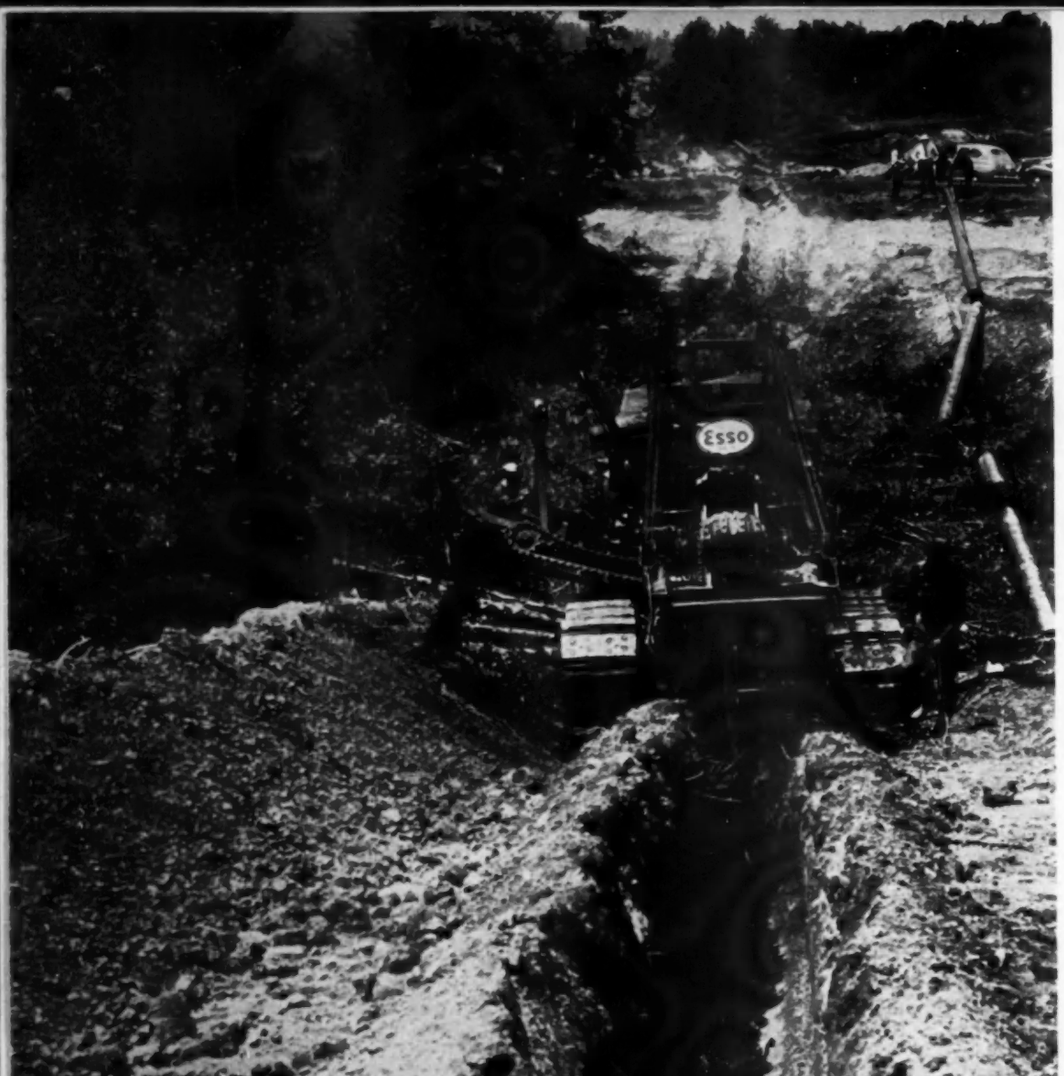


HOEING FOR DEFENSE

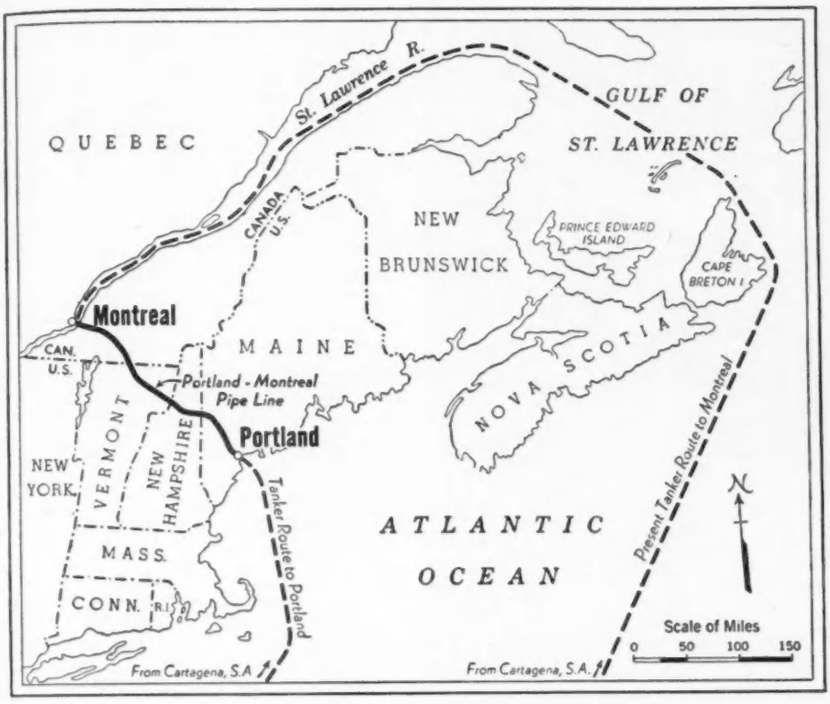
A ditching machine paws a slit in the earth for the pipe line, destined to carry crude oil from Portland, Maine, to Montreal, Canada. It will be in operation by the end of the year.

New England's "War Baby" Pipe Line Half Finished

By J. V. HIGHTOWER, Staff Writer

STARTED late in June, the 236-mile, 12-inch, $8,500,000 Portland to Montreal pipe line owned by Standard Oil Company (New Jersey) is over half completed. That is the brief story of a fast piece of work by engineers, 1200 to 1500 pipeliners and an array of modern construction equipment laboring 7 days a week in wild country against time and a war emergency. All indications point to completion of this 50,000-barrel-a-day crude oil line in late October. By December it should be carrying oil. Two Standard Oil Company (New Jersey) subsidiaries, Portland Pipe Line Company and Montreal Pipe Line Company, are building the American and Canadian portions respectively. H. M. Stevenson, chief engineer of Portland Pipe Line Company, is directing engineering and construction of the project. G. A. Lee of Portland Pipe Line Company is assistant chief engineer, and A. H. Chapman of the same company is chief engineer at the South Portland terminal.

New England's first pipe line is a "war baby." With many American tankers transferred to the British shuttle service, means had to be found to cut the time needed by tankers to carry South American oil to the refineries at Montreal. The Atlantic tankers had normally been taking crude oil up east of Nova Scotia and Cape Breton, thence northwest into the mouth of the St. Lawrence River and down the river to Montreal. By



Montreal-bound cargoes to be discharged from tankers at Portland, Maine, will save tankers 10 to 12 days on each trip.

the end of this year they will go into South Portland, Maine, and from a new pier discharge their cargoes into the new pipe line that will save them 10 to 12 days. Portland was chosen as the American terminal because of its exceptional harbor, protection from weather and its 35-foot channel. The route from Portland to Montreal is roughly a straight line running northwest through Maine, New Hampshire and Vermont into Quebec Province to Montreal, the Canadian refining center with refineries of Imperial Oil, Ltd., McColl-Frontenac Oil Company, and British American Oil Company. Venezuela and Colombia probably will contribute most of the oil carried by the pipe line. Locations for the 8 pumping stations, all under construction, are: South Portland, Raymond and North Waterford in Maine, Gorham and Riverton in New Hampshire, West Burke in Vermont, and Highwater and St. Cesaire in Quebec.

Construction Status

Williams Brothers Corporation of Tulsa is contractor for the 72 miles between Montreal and Newport, Vermont, and for the 83 miles between Newport and Gorham, New Hampshire. This corporation is also building the pumping stations. Oklahoma Contracting Company of Dallas is contractor for the 80 miles between Gorham and South Portland. In order to hasten completion of the project the two companies purchased about $300,000 worth of tractors, ditching machines, welding machinery, compressors and other equipment. More than half the line, roughly

Much of the Maine-to-Canada line is through rock. Above is the ditch through rock, and below a workman is getting ready for blasting it.

Pipe for the new Portland-Montreal crude oil line, which will insure a constant supply to Canadian refineries and release tankers to serve the Atlantic seaboard, is droppd into the ground in the New Hampshire mountains near Gorham. Boom "cats" handle the heavy pipe with ease and lay it in the ditch like a piece of rope.

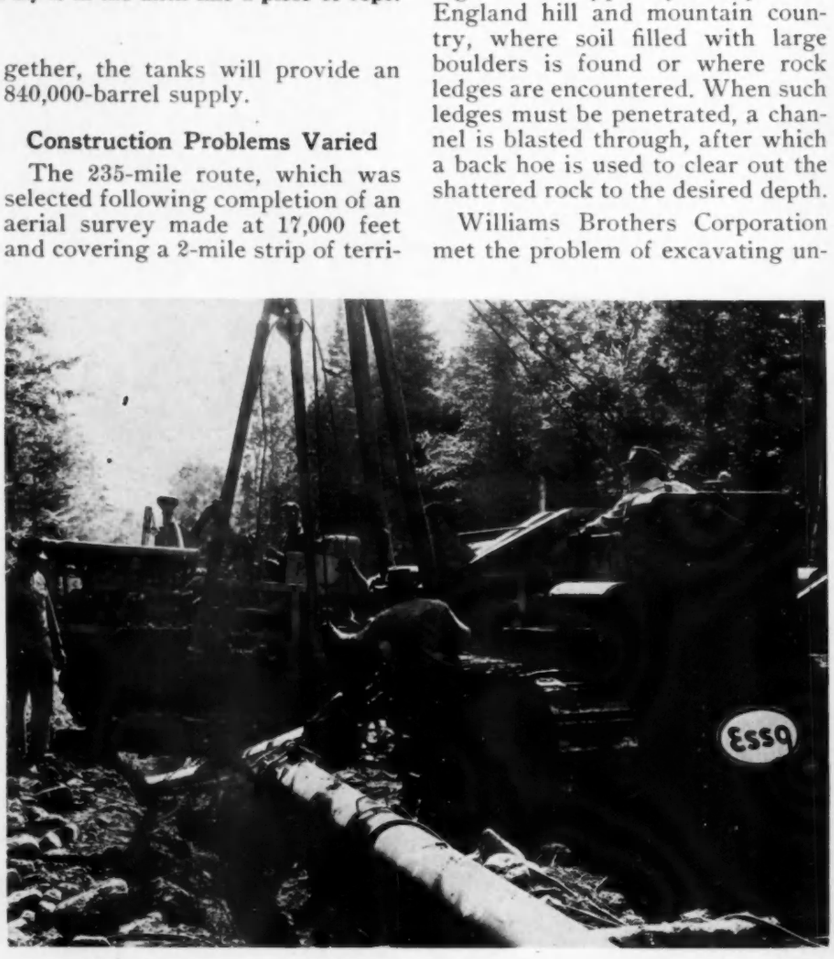
135 miles, has been laid, including some 15 miles in Canada. Recently four line gangs were at work. One was working in Maine near Bolster Mills; a second at Gallup Mills, Vermont; a third near West Burke, Vermont; and the fourth on a small island in the St. Lawrence River. Line has been laid widely variable daily rates, much blasting being required in breaking rocky terrain at many points.

Work is under way on all phases of the project. A construction crew is working at each pump station. Station construction is on schedule, with all heavy foundations being finished and steel and brickwork in progress. Near Montreal, work is under way on the St. Lawrence River crossing. Initial plans called for digging a 16-foot ditch across the river bed but presence of rock caused the depth to be changed to 3 feet. At South Portland near the end of July construction was started on the new 920-foot finger pier, which will accommodate two large tankers simultaneously. The pier will be of crib construction employing timber and stone. Near the pier will be the terminal pump station and two storage tanks of floating roof type and a capacity of 140,000 barrels each. About 3 miles inland will be four more tanks of similar type and capacity. Together, the tanks will provide an 840,000-barrel supply.

Construction Problems Varied

The 235-mile route, which was selected following completion of an aerial survey made at 17,000 feet and covering a 2-mile strip of territory, has a varied terrain which includes marshy lowlands, forests, stretches of solid granite and a maximum elevation of 1950 feet in the White Mountains. Naturally, the procedure involved in clearing right of way, ditching and laying pipe has altered with the circumstances. In wooded regions where large boulders are encountered the preliminary step is taken by woodsmen who clear off the timber and underbrush. Following these come heavy angledozer machines which shove aside boulders from the right of way, which is usually about 35 feet wide, and open the way to trucks, tractors and rooting machines. Pipe is hauled in from the nearest railroad by truck where the territory is favorable to these vehicles. In very difficult regions the pipe is carried on trailer type trucks (floats) pulled by caterpillars. In stretches of soil free from heavy boulders the ordinary ditching machine is used at a rate of around two miles per day. Normally the ditch is 3 feet wide and 3 feet deep. Much of the pipe is being laid in typically rocky New England hill and mountain country, where soil filled with large boulders is found or where rock ledges are encountered. When such ledges must be penetrated, a channel is blasted through, after which a back hoe is used to clear out the shattered rock to the desired depth.

Williams Brothers Corporation met the problem of excavating un-



Two powerful boom "cats" bend a pipe to fit the contour of terrain along the route.

BOTH RIGHT!

One of Gier's "Caterpillar" Diesel D4 Tractors with Trackson Traxcavator is shown digging a salt-water pit. This unit operates on 1½ gallons of 8-cent fuel per hour.

A "Caterpillar" Diesel D6 Tractor with LaPlant-Choate 'dozer is Johnson's idea of a tough and handy earth-mover. Here shown digging salt-water disposal pit. 100 x 150 feet, 5 feet deep.

Numerous streams and some large rivers, including the St. Lawrence, must be crossed by the line from Portland to Montreal. Here the pipe is shown being moved into position for lowering into a stream bed. It has already been tested.

usually rocky soil with a three-pronged rock rooter. The machine was designed and constructed by the company. The "business end" of this excavator consists of three heavy steel claws or prongs mounted side by side in a steel A-frame carried on a single pair of wide wheels with the points of the prongs trailing behind in contact with the earth. A tractor hauls the machine. The prongs are lowered and raised at the end of a cable running over a sheave system to a winch carried on the tractor. Preceding the three-pronged rooter on the cleared right of way is a single-pronged rooter used for preliminary breaking of the earth. After this excavator comes the tractor pulling the rock rooter with its three prongs set apart at a distance equal to the width of the ditch. Because of the extreme resistance offered to the prongs by the embedded boulders, additional power is furnished by a bulldozer following behind and pushing against three heavy iron bars welded against the backs of the prongs to provide a contact surface. With the tractor pulling and the bulldozer pushing, the prongs plough down through the soil and gouge the boulders loose. After the rock rooter comes a ditching machine to remove the boulders and soil from the ditch, and finally a back hoe.

The seamless steel pipe is 12 inches in diameter, with 3/8-inch walls. The 40-foot random lengths being hauled along the narrow rights-of-way in numerous places have led to the use of two tractors in conjunction with a pipe trailer. After one tractor has hauled the 50-foot trailer to the site where the pipe is unloaded, this machine is detached to allow the tractor in the rear to pull out the empty trailer and return with it for another load. By such procedure the difficulty of trying to turn a trailer on a narrow right-of-way is avoided.

When pipe has been unloaded the lengths are lifted upon timbers laid across the ditch at intervals of about 20 feet and their ends brought together for welding. Boom cats, caterpillars with side booms and power lifts, handle this job. Alignment clamps hold adjacent lengths of pipe together until a welder has fastened them with a single stringer laid around the joint. Other welders follow and complete the weld, using four passes. Power for welding is furnished by gasoline-engine-driven generators with current capacities ranging from 200 to 400 amperes. After being welded the pipe is lowered into the ditch with boom cats and the ditch is backfilled.

Unavoidable deviations in the route make it necessary for pipe to be bent at some points. Bending 12-inch line is no snap, but it is done. One method being used consists of the cooperative action of a pair of boom cats. One machine holds the pipe down with a down-pull cable. The other at the end of the pipe, with a cable around the end, puts the pipe into tension until the desired curvature is reached. Oklahoma Contracting Company is using a bending shoe attached to the side of a tractor.

Pipe Not Insulated

It was considered unnecessary to bury the pipe below the frost line or to insulate it. Oil will be shipped aboard tanker in South American ports at a temperature of 80 or 90° F., and because most of the run to South Portland will be made in the warm Gulf Stream the large volumes of oil are not expected to drop much in temperature. During transit in the pipe line in winter the crude probably will not fall below 30° F.

Most of the pipe will receive as a protective exterior only a single primer coating, because the major portion of the route is of non-corrosive character. Several miles of 24-inch interconnecting line at the South Portland terminal will have an asphalt and felt wrapped coating as protection against salt in the soil there. Wrapping is also applied at river crossings and swampy sections.

As the line is being laid it receives an air pressure test for tightness before being covered in the ditch. At the end of each day the last section is capped, soap solution is applied to the last untested weld and the line is subjected to air pressure of 120 pounds per square inch to reveal by bubbles any leaks in the weld. When a stretch of line between two pump stations is completed it receives a final hydrostatic test of 800 pounds which is slightly greater than the normal working pressure when oil is flowing.

Each of the 8 pump stations is to have two horizonal, triplex plunger pumps. Electric drive will be used in all but two stations, and all stations will have 1000-horsepower maximum capacity, though the full capacity will not be utilized at all times. Stations are provided with a 30,000-barrel emergency tank. Stations using electric power are expected to employ 4½ men per shift, and those with diesel power, 2 men per shift.

Effects of Connate Water Upon Ultimate Recovery

By WILBUR F. CLOUD
Professor of Petroleum Engineering, University of Oklahoma

PART I

IT IS practical to assume that some water indigenous to marine sediments at the time of their deposition will remain on and between sand grains after the migration of crude petroleum into the porous rocks, which lie adjacent to the oil-source rocks. It is debatable, however, if all the high percentages of connate water often reported was actually indigenous to the reservoir rocks before the sands were cored. Cable-tool cores of virgin oil sands frequently fail to contain as much native water as rotary-tool cores. Perhaps much lower water content would be found at a short distance laterally from well bores.

Very little basic knowledge has been obtained regarding the effects of connate water upon oil and gas movement and productivity as actually existing in underground reservoirs. For the most part this fundamental knowledge must be obtained in the laboratory.

Regardless of the complexity of deposition, texture, and bedding of underground sandstones and the difficulty in formulating quantitative conclusions regarding their productive characteristics, the basic physical laws governing their reaction to certain flow phenomena may be discovered through laboratory investigation. And when once deciphered and understood, may be fundamentally reliable for the interpretation of the behavior in individual wells or entire petroleum reservoirs. A knowledge of these basic principles will assist the petroleum technologist in the application of gas injection, water-flooding, calculation of underground reserves, well-spacing patterns, as well as aid in determining the best rate of withdrawal of gas and oil from any particular reservoir.

Pertinent Investigations

Within the last several years considerable research has been done regarding the effects of various percentages of oil, gas and water saturation upon the relative permeability of both consolidated and unconsolidated sands.

Of these investigators, Hassler et al[1] were the first to publish the fact that, as an oil sand is depleted of its oil by a gas, the *relative* permeability of the sand increases to a stabilized value of approximately 90 percent of the *dry* (specific) permeability when the oil content or saturation is approximately 15-20 percent of the available pore space. Similar data have been published by Muskat et al.[2] These two publications seem to indicate that, oil recoveries by gas expansion in excess of 50 percent would require uneconomical gas-oil ratios; and if the oil saturation could be reduced to approximately 25 percent, gas velocities or "blowing" through the pore spaces would cause excesive oil evaporation.

By first saturating unconsolidated sand bodies with water and then displacing most of this water by use of kerosene, Dunlap[3] was able to portray the effects of various percentages of connate water upon the relative permeability of sands to oil. The permeability-saturation curves he obtained are similar to those of Hassler and Muskat, the former using gas and oil, the latter using water and carbon dioxide. Dunlap's curves indicate that, as the film of water surrounding the sand grains and at the contact points of grains exceeds approximately 15 percent of the effective pore space, the relative permeability to oil is appreciably reduced; and at 50 percent-water saturation, the permeability to oil is less than 10 percent of the specific (dry) permeability of the sand.

By introducing various mixtures of oil and water into a vertical column of water-wet unconsolidated sand at various steady rates, Leverett[4] observed relative permeabilities and water saturations while varying the liquid viscosities, porosity, liquid density, pressure gradient, interfacial tension, etc. He concluded that, relative permeability of a sand to oil-water mixtures is virtually independent of the viscosity of either liquid, but is definitely related to pore-size distribution of each particular sand. Also, the permeability is dependent upon the pressure gradient and percent of water saturation. Furthermore, oil flow is segregated to

TABLE 1

Item No.	Details of Tests	Sand Contained Variable Amounts of Connate Water					Dry Sand—No Connate Water	
		Test 2	Test 3	Test 5	Test 6	Test 8	Test 4	Test 7
1	Room temperature	75 F.	105	105	105	105	105	105
2	Porosity of sand	33.5	31.4	32.9	31.8	31.2	33.4	33.4
3	Percent connate water	16.8	20.8	17.2	18.3	14.0	....	....
4	Percent of pore space filled with oil	83.2	79.2	82.8	81.7	86.0	98.0	96.0
5	Pressure differential during water displacement, inches mercury	11.0	9.0	9.4	8.5	13.0	....	....
6	Percent recovered by Gas Drive	28.8	40.6	41.5	41.05	47.8	51.7	54.2
7	Pressure differential during Gas Drive, inches mercury	9	9	10	8.3	6.2	8.8	3.3
8	Cubic feet of gas used during test	33.1	12.4	17.4	17.5	5.4	15.9	17.9
9	Gas-oil ratio, cu. ft. per bbl.	32,100	14,520	20,190	20,880	6,264	10,190	11,187
10	Additional water recovered during gas drive, Cc.	None	18	8	11	None	....	....

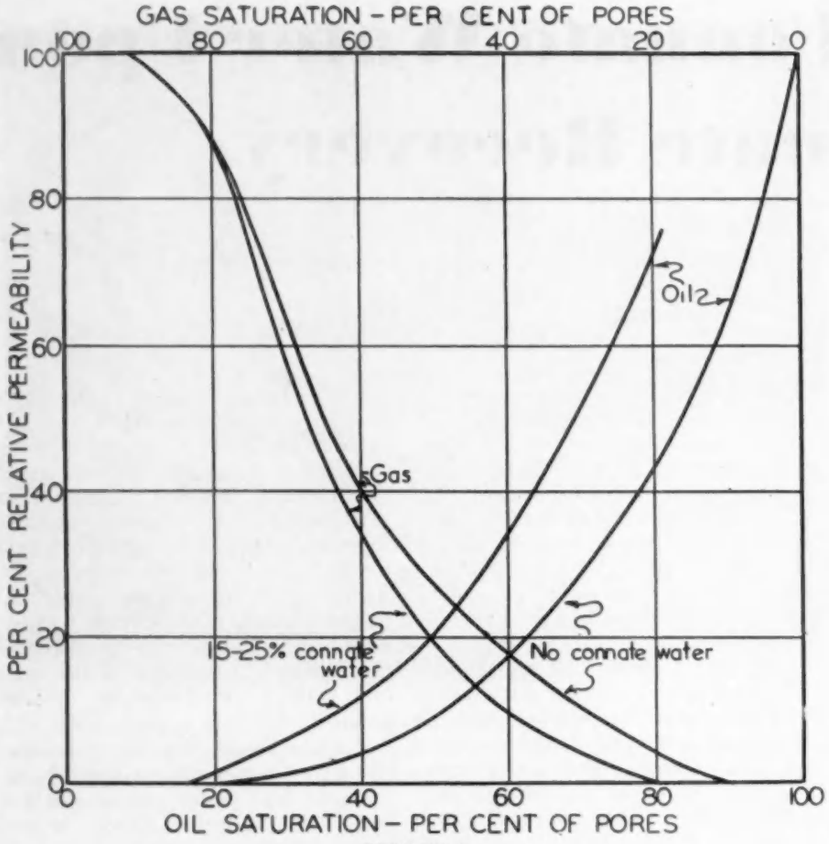


FIGURE 1

the larger pore spaces where it moves as separate droplets, and the water flows through smaller channels not occupied by oil and as a continuous film around each sand grain.

Botset[5], using water and carbon dioxide, determined permeability and liquid saturation relationships in a consolidated outcrop sandstone, having a permeability of approximately 500 millidarcy. He concluded that the mechanics of approach to equilibrium saturation is very little affected by the consolidation of the sand and that cementing material and grain-size distribution will cause minor variations in the permeability-saturation relations of any sand under investigation. Also, in regions of low liquid saturation the gas permeability is higher than for the corresponding saturation in unconsolidated sands.

Leverett and Lewis[6] state that, as much as 40 percent of the available pore space may be occupied by connate water without appreciably altering the gas-oil ratio during recovery by gas expansion. They also predict that the presence or absence of connate water is not an important factor in the recovery of oil by gas expansion, but it is not clear whether they refer to rate of recovery or ultimate recovery. Their experimental data were obtained by forcing a mixture of gas, oil, and water through a water-wet sand column of 100-200 mesh. Their Figure 8 shows a recovery of 25 percent by natural flow when 20 percent connate water is present, and 20 percent recovery when the connate-water content is 40 percent. This is no slight difference when we express it in terms of field area and sand thickness. On a 10-acre location, assuming a dry effective porosity of 20 percent and a sand thickness of 100 feet, this 5 percent difference in recovery by natural flow would amount to 124,500 barrels, or approximately $160,000.00 worth of oil, assuming good oil at present prices.

From the previous citations, it is tentatively apparent that: (1) connate-water content of only 15 or 20 percent will have very little effect upon the relative permeability of a sand to oil, gas, or water; (2) that viscosity has a small effect upon relative permeability-saturation relations; (3) a small decrease in oil saturation causes a large increase in gas-oil ratios, higher ratios occuring with higher oil viscosity provided the oil-saturation percentages are similar; (4) relative permeability as related to saturation is not a fundamental property of all sands, different sands have individual characteristics and different gas-oil ratios at similar saturation; (5) different sands require different pressures to start the movement of fluids through them, and a certain pressure will remove only a certain amount of oil depending upon the number and size of capillary openings; (6) from 40 to 50 percent of the pore space may be filled with water, which remains fixed as oil and gas are produced; (7) the amount of water remaining fixed in a sand will depend upon sand-grain size, specific permeability, and pressures applied.

In order to amplify the trend of thought regarding permeability-saturation relationships, Figure I has been reproduced from the investigations of Leverett and Lewis. It portrays the similarity of all pertinent curves, and presents a comparison between curves for both oil and gas with and without connate water.

It is manifest that the amount of water remaining in reservoir pore spaces after gas-expansion flow or gas-lift operations cease is a matter of prime importance when the application of gas injection or water flooding is considered. The amount of this water must be determined from cores on a pore-space percentage basis, and must be considered in calculating the amount of unrecovered oil in place before a field or lease can be intelligently subjected to secondary-recovery methods over a period of years. Laboratory investigations indicate that ultimate recovery of unsaturated oil is appreciably affected by the presence of various amounts of water existing as a coating on sand grains and at their points of contact.

Gas Drive Data—During 1928 Van A. Mills et al[7], using oven-dried Wilcox (Simpson outcrop) sand packed in a steel tube to 30.6 porosity, performed a series of gas-drive experiments to determine ultimate recoveries at different pressures and rates of flow. By arbitrarily assuming the economic limit of gas-oil ratio to be 11,200 cubic feet per barrel, they recovered approximately 50 percent of the original oil when using low pressures. No connate water was present during these tests.

Krutter[8] obtained an average oil recovery of 52 percent at constant

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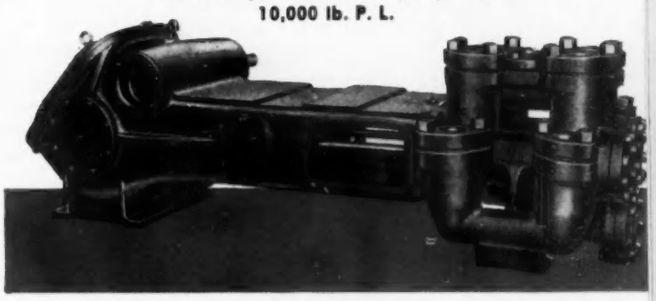
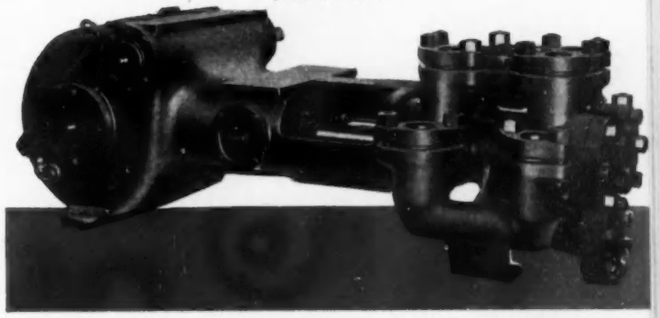
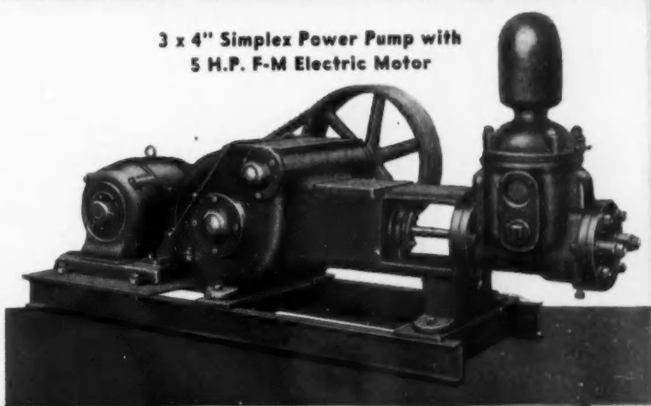
5 x 10" Duplex Power Pump Fig. 6185
10,000 lb. P. L.



4 x 6" Duplex Power Pump Fig. 6181
3,800 lb. P. L.



3 x 4" Simplex Power Pump with
5 H.P. F-M Electric Motor



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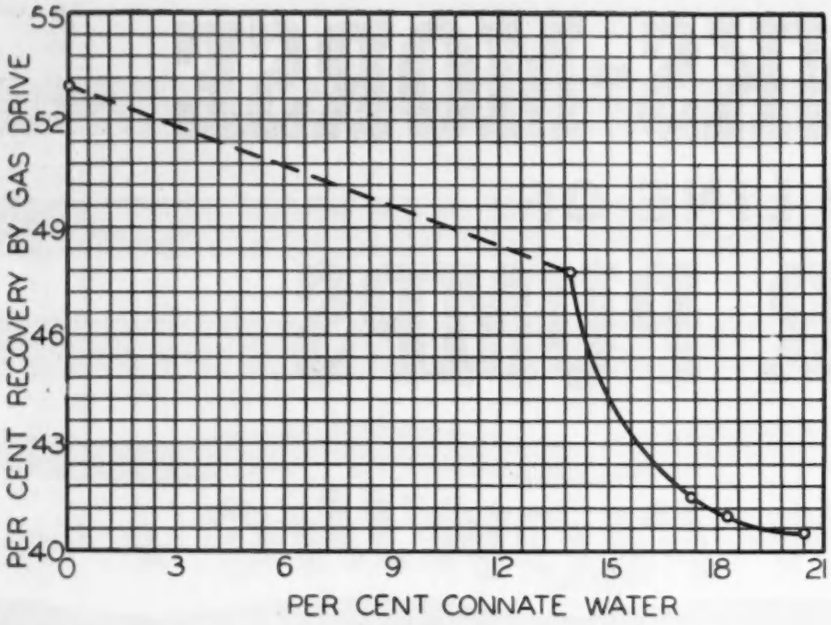

FIGURE 2

pressure, using air to displace oil from 29 water-free consolidated Venango sand cores of variable permeability. There seemed to be no apparent correlation between percent recovery and permeability. Eight of the same cores were cleaned and dried, then saturated with water, after which portions of this water were displaced by oil before the cores were subjected to constant air pressure. Although the results varied with different cores, the maximum oil recovery (+40 percent) was obtained when the connate-water content was 30 percent or less.

The writer on several occasions has repressured small solid sandstone blocks of variable porosity and permeability, using either gas or air as the secondary recovery medium. The ultimate recoveries in the absence of connate water varied between 47 and 52 percent. In all these experiments there seemed to be no consistent correlation between ultimate recovery and porosity, sand texture, or permeability. However, oil viscosity and pressures applied did affect the rate of recovery, gas-oil ratio, and ultimate recovery.

Recently the writer performed a series of gas-drive experiments to determine the effects of connate water and pressure gradient upon ultimate recovery. The results of these tests have been compiled in Table 1. Unscreened, oven-dried Wilcox sand was packed into a three-inch steel tube to the various porosities shown. The tube was then placed in a vertical position and subjected to a slow flow of distilled water from the bottom toward the top until all of the air was displaced and the rate of flow was constant. After placing the water-saturated sand column in a fixed position at a low angle of repose, unsaturated crude oil of 38 A. P. I. gravity was injected slowly to displace the various amounts of water, as shown in Tests 2-3-5-6-8. Gas was then injected to displace as much oil as possible within reasonable time limits and gas-oil ratios. In Tests 4 and 7 no water was used, the dry sand being saturated only with oil before gas injection. Except in Test 2, the room temperature was maintained at 105° F. throughout each test run.

It is noteworthy that very little or no water was displaced by the oil and gas after oil once appeared at the discharge "well," see item 10. From this series of tests, it is concluded that: (1) there is no direct dependable correlation between porosity and recovery, compare items 2 and 6; (2) specific permeabilities of each packed tube varied over a wide range of values, and cannot be duplicated; (3) connate water content below the much-discussed 20 percent value has a marked effect upon total recovery, see Figure 2 and Test 5 and 8 in comparison with 4 and 7; (4) at similar connate-water saturations, the recovery is proportional to original oil in place and to pressure differential, see items 3-4-7; (5) greater recoveries were obtained in the dry sands, no connate water being present; (6) a low-pressure differential is preferable, in order to reduce the tendency of gas to by-pass or channel; (7) the effect of temperature and viscosity is important, see Test 2; (8) except Test 8, which contained the least connate water, the gas-oil ratios were lower in the water-free-sand bodies, indicating that it is more difficult to recover oil in the presence of 15-20 percent connate water.

Test 8 is also significant because it indicates that higher recovery at lower gas-oil ratios might result when the minimum (14 percent here) of water exists as a film surrounding sand grains, thus providing the maximum size of flow channel through which oil can be pushed with the least frictional resistance against the sand grains. The vast difference in the gas-oil ratios of Tests 3 and 6, at similar recoveries and connate-water content, is difficult to explain unless it was a result of lower original oil content.

The work of Mills,[7] Krutter,[8] and the writer might be interpreted as indicating that regardless of sand texture, porosity, compaction, and permeability, only approximately 50 percent of the original oil can be recovered by gas drive under ideal conditions from either consolidated or unconsolidated sands, provided gas-oil ratios are disregarded and viscosities and temperatures are similar.

Part 2 of this series of two articles, to be published in an early issue, will discuss connate water and how its absence or presence influences recoveries of secondary projects, chiefly water flooding.

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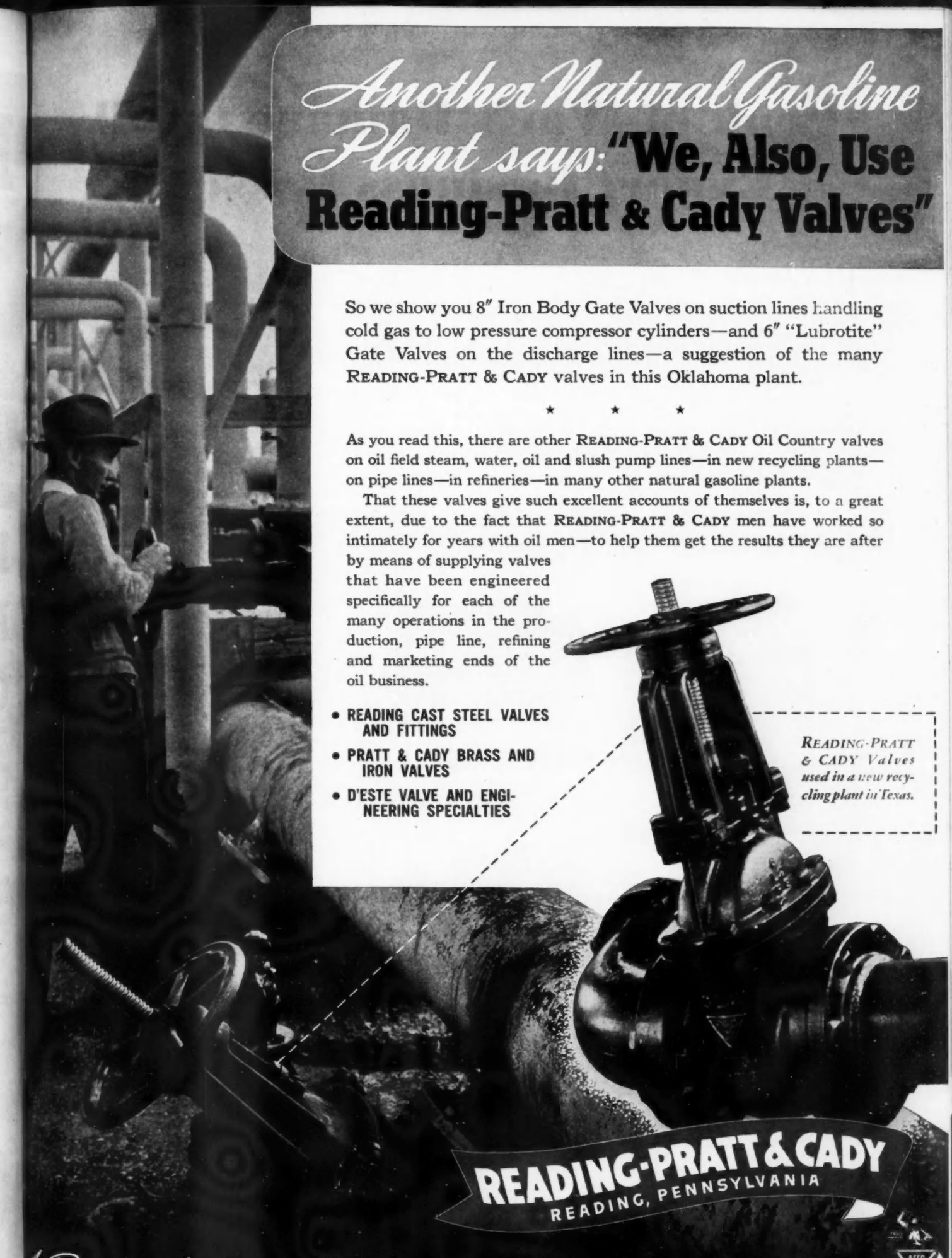

Another Natural Gasoline Plant says: "We, Also, Use Reading-Pratt & Cady Valves"

So we show you 8″ Iron Body Gate Valves on suction lines handling cold gas to low pressure compressor cylinders—and 6″ "Lubrotite" Gate Valves on the discharge lines—a suggestion of the many READING-PRATT & CADY valves in this Oklahoma plant.

* * *

As you read this, there are other READING-PRATT & CADY Oil Country valves on oil field steam, water, oil and slush pump lines—in new recycling plants—on pipe lines—in refineries—in many other natural gasoline plants.

That these valves give such excellent accounts of themselves is, to a great extent, due to the fact that READING-PRATT & CADY men have worked so intimately for years with oil men—to help them get the results they are after by means of supplying valves that have been engineered specifically for each of the many operations in the production, pipe line, refining and marketing ends of the oil business.

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READING-PRATT & CADY Valves used in a new recycling plant in Texas.

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A Division of **AMERICAN CHAIN & CABLE COMPANY, INC.**

Peak of War's Damage to Oil Export Business Passed

By L. J. LOGAN, Associate Editor

THE war's effect on export business of the American oil industry probably has reached and passed its maximum severity, and any change hereafter should be for the better and not for the worse.

Latest statistics, covering June and the first half of 1941, were on their face unfavorable, having compared with figures on exports before the loss of the European markets through the German domination of the continent after the invasion of the Low Countries and France.

However, beginning with figures for July, 1941, the statistics on American oil exports will be more favorable in comparison with those of last year.

Moreover, domestic consumption in the United States has steadily expanded while the war was bringing uninterrupted declines in export business, and the gains in domestic use have more than compensated for losses of foreign trade. Consequently, lost overseas business is hardly missed now, for the industry as a whole, and what export trade is left is of relatively less importance.

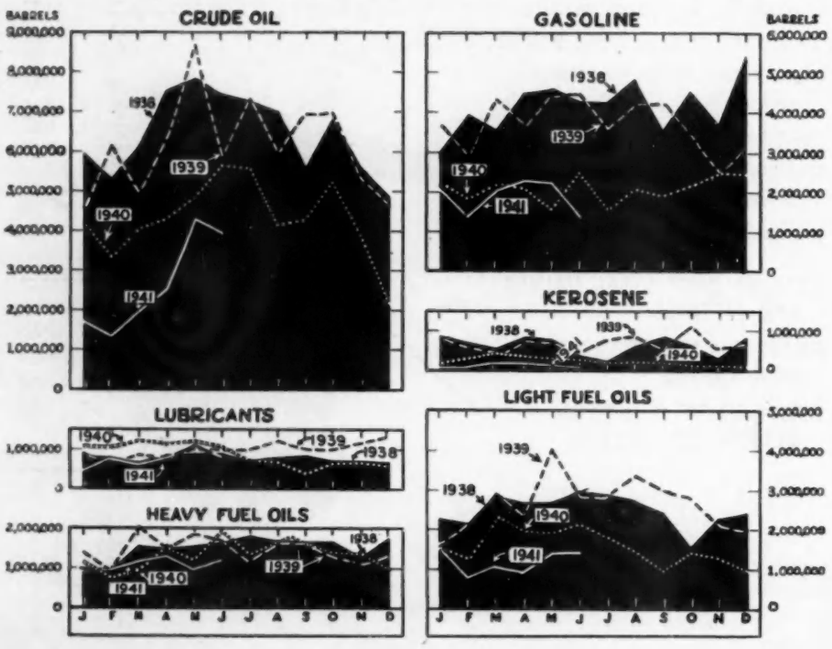
Even further curtailment of exports, therefore, would not be particularly alarming, considering the low level to which the trade already has sunk.

Actually, however, exports lately have been holding fairly steady, and they have compared favorably with those a year ago; and while smaller exports to Japan, a leading customer, are in prospect, because of the government's ban against shipments to that country, there are to be henceforth increased shipments to Great Britain and Russia, with the British taking relatively large quantities from the Gulf Coast under the lease-lend program.

In the first six months of 1941, total exports were 34.1 percent smaller than in the corresponding months of 1940, with shipments of crude down 40.2 percent and the movement of refined products off 30.3 percent, although shipments of aviation gasoline and residual fuel oil were down only about 10 percent. Figures for June showed no improvement over those for the first half of the year as a whole.

However, for July, August, and September, forecasts of export demand by the Bureau of Mines have been progressively more favorable. The bureau's estimates of crude oil exports were as follows:

First Half Exports One Third Lower Than Last Year



ITEM	JUNE 1940	JUNE 1941	JUNE Percent Change	FIRST 6 MONTHS 1940	FIRST 6 MONTHS 1941	FIRST 6 MONTHS Percent Change
Crude Oil	5,692,000	3,934,000	— 30.9	26,415,000	15,793,000	— 40.2
Products:						
*Motor Fuel	2,581,000	1,262,000†	— 51.1	13,090,000	9,421,000	— 28.0
Aviation Gasoline	646,000	386,000‡	— 40.2	2,336,000	2,114,000	— 9.5
*Kerosene	332,000	112,000	— 66.3	2,291,000	805,000	— 64.9
*Gas Oil and Distillate	2,129,000	1,380,000	— 35.2	11,326,000	6,830,000	— 39.7
Residual Fuel Oil	1,959,000	1,267,000	— 35.3	7,710,000	6,829,000	— 11.4
Lubricants	1,075,000	831,000	— 22.7	6,759,000	4,705,000	— 30.4
Wax (thousands of pounds)	13,195	16,058	+ 21.7	129,806	80,698	— 37.8
Coke (short tons)	30,700	31,400	+ 2.3	117,000	120,700	+ 3.2
Asphalt (short tons)	35,200	18,800	— 46.6	157,700	122,300	— 22.4
Miscellaneous Oils	45,000	48,000	+ 6.7	624,000	305,000	— 51.1
§Total Refined Products	8,516,000	5,217,000	— 38.7	43,716,000	30,458,000	— 30.3
Total Crude and Products	14,208,000	9,151,000	— 35.6	70,131,000	46,251,000	— 34.1

* Exclusive of "shuttle" movement. † Includes 5,000 barrels benzol. ‡ Includes 54,000 barrels anti-knock compounds. § Not the sum of the above figures, some of which do not indicate barrels.

Crude Oil Exports

Month	1940 Actual (Barrels)	1941 Forecast (Barrels)
July	5,607,000	2,900,000
August	4,170,000	3,500,000
September	4,260,000	4,000,000

The bureau's forecasts of exports of gasoline, made with the aid of principal exporters, were as follows:

Gasoline Exports

Month	1940 Actual (Barrels)	1941 Forecast (Barrels)
July	1,687,000	2,000,000
August	2,087,000	2,200,000
September	1,907,000	2,700,000

A MENACE OF MEMORY STILL LIVES!

THE CHISHOLM TRAIL has become a memory of the old West. One of its terrifying menaces, the stampede, remains however in another form to impede clear thinking and sound action of the present day.

Stampedes have always been the result of panic. In the '60's a loose blanket flapping in the wind at night might send 10,000 Texas Longhorns running madly and trampling all before them until they dropped from exhaustion. In 1941 careless words and cloudy thoughts may likewise stampede otherwise normal individuals and organizations.

Axelson, therefore, is guarding against all influences which might tend to "stampede" them into an unfavorable position. They are turning out oil well plunger pumps and sucker rods to meet industry's demand but always commensurate with the highest quality material and workmanship. For 49 years the slogan "There is no Economical Substitute for Quality" has characterized Axelson's operations—will continue to do so in years to come.

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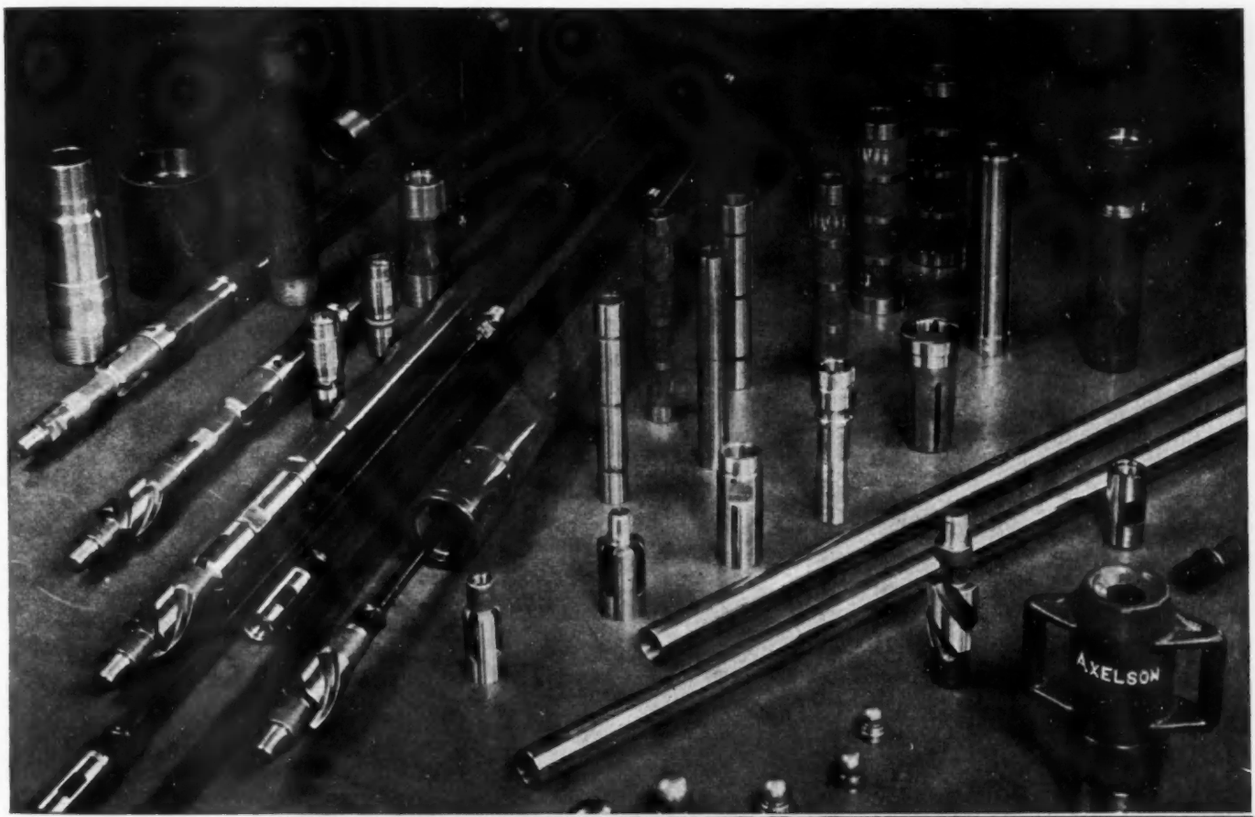


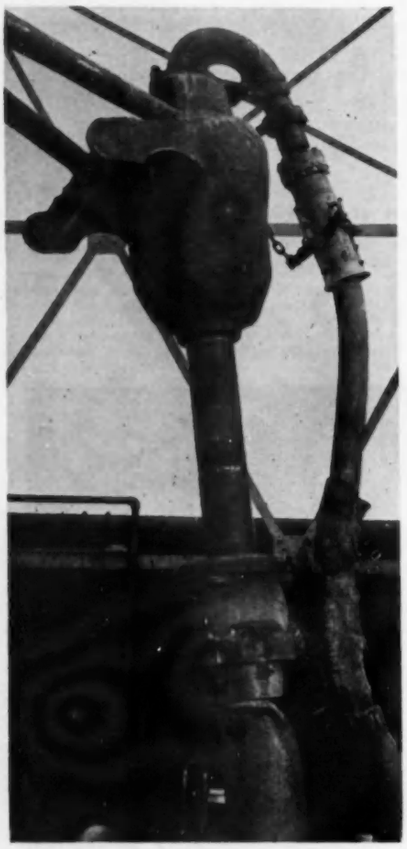
WE STILL SAY: "THERE'S NO ECONOMICAL SUBSTITUTE FOR QUALITY"

AXELSON SELLS AND *SERVICES*
DEEP WELL PLUNGER PUMPS & SUCKER RODS

Practical Operating Hints for

1. HOSE CARE

Buffer Absorbs Chafing Wear



Wrapping of old tires at wear points relieves hose structure of pounding.

CHAFING of mud hose against elevators, against the kelly bushing when in the rathole, and against derrick struts or braces when vibrated by heavy mud pressures, all result in loss of useful hose life through destruction of the outer plies while the fluid channel is still intact.

One company protects its rotary hose with sections of discarded automobile tires. An old casing is sawed through, after removing the wire beads, and approximately one half of the tire used. At intervals of eight to 12 inches, the carcass is cut through from the edge almost to the flat tread section, and the section thus formed is wired to the hose at points of contact with derrick objects.

Sufficient flexibility is given the old tire by the lateral cuts or notches to enable it to follow the normal sag of the hose with swivel travel, and thus not to impair the normal flexibility of the hose.

When more than one section of protector is required, adjacent units may be overlapped, or an entire tire used, simply by making one cut entirely through the carcass and notching the entire circle at desired intervals.—*Ira M. Carroll, Los Angeles.*

2. OPERATION

Control Extensions Aid Engine Man

TO MAKE the engine clutch controls more easily and quickly accessible to the engine man out on the walkway, one company welder built handy extensions.

An extension of approximately three feet was needed from the clutch lever out to the walk. A 3-foot length of ⅜-inch pipe was used, and a tee handle welded to it at the outer end. To the other end, a ¾-inch pipe nipple was welded at right angles to form a bearing for a short piece of round ¼-inch steel stock. This short pin then was welded to the bolt-ends of a cable clamp that was clamped to the upper end of the clutch lever.

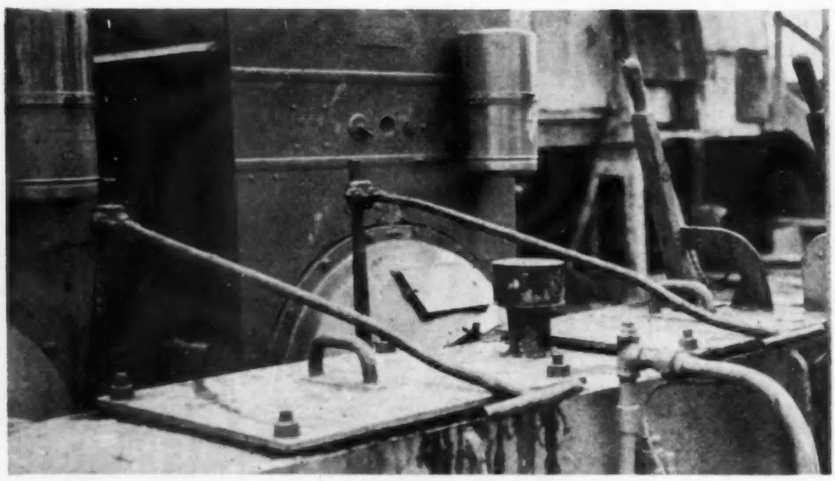
The installation is not permanent, since the cable clamps are easily removed when the engines are to be moved.

3. PARTS CARE

Gasket Locker Eliminates Loss

Independent locker at boiler setting provides storage for gaskets and tools.

A HANDY locker for boiler gaskets and small hand tools is used by Hancock Oil Company at drilling wells. Made of steel, it has two compartments with hooks upon which the gaskets are placed ready for use when needed. Doors are attached which may be locked when leaving the rig, or when the locker is not in use, to prevent pilfering. The case is set on angle-iron legs so that it will stand erect at most any point where the ground surface is level.

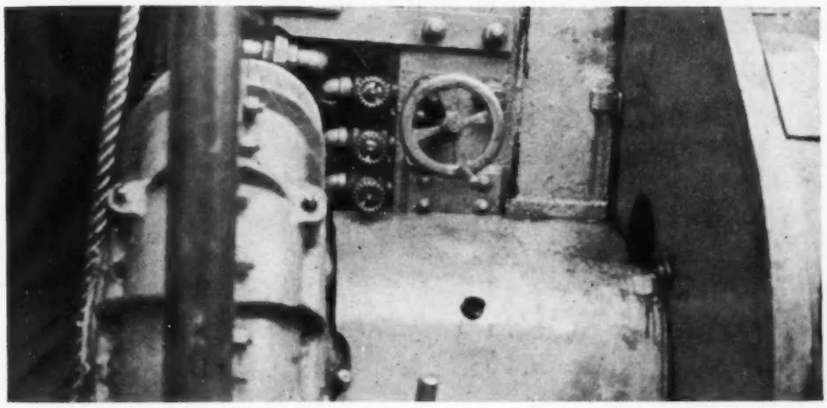


Bringing the clutch levers out to the walkway through extensions clamped to usual levers aids in prompt and careful manipulation.

THE DRILLING RIG . . .

4. BRAKES

Concentrated Control at Driller's Stand Simplifies Adjustment of Fluid Flow



Grouping control valves for brake, drum and wash-down flow at the throttle-reverse lever aids driller in fluid regulation.

SO they can control operations on the floor, drillers for John Mabee installed three valves between the hydraulic brake case and the throttle-reverse wheel on the drawworks. The valves are in water lines, the supply pipe for which is bracketed to the frame of the hoist. The top valve is used in adjusting fluid to the hydromatic brake, the center for water to the hoist brake drum, and the lower to a line connected to the casing in the kelly rathole so that water can be sprayed for washing down without using a hose and floor valves.

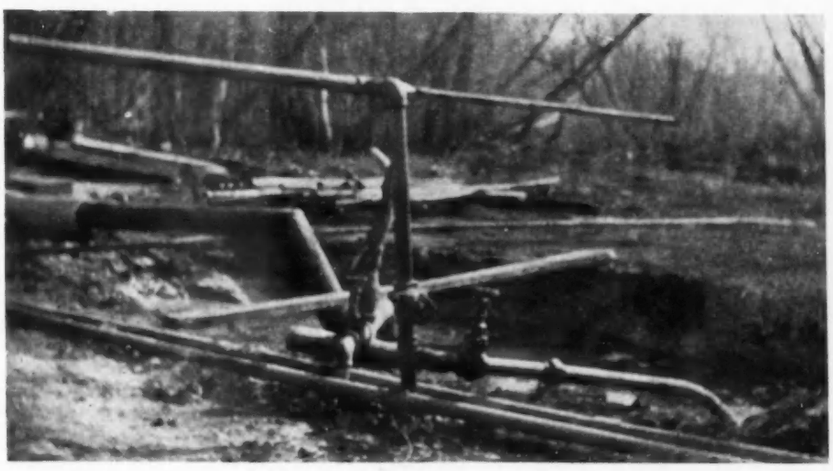
5. MUD

Unitized Mounting Aids Mud-Gun Use

TO provide greater rigidity in the mud-gun mounting, and to afford closer control of both operations when jetting and gunning are carried on simultaneously, one drilling company mounts the two lines on a unitized base, with two valves controlling fluid to each set so either may be operated with one hand while the other directs flow through the gun.

The riser is tied into the mud jet line, with unions on either side of the tee. A 2-inch nipple and elbow so a half swing may be formed at the branch of the tee to carry valve and union for mud or shale jet, with a 2-inch riser and gate valve in an upright position atop the assembly for the mud gun.

The entire manifold may be disconnected by loosening three unions, after which it may be closed upon itself for easy transportation and reassembly on the next job.—*E. C. Overturf, New Harmony, Ind.*



Unitizing flow lines to permit combined jetting and gunning from one stand gives closer control of mud mix.

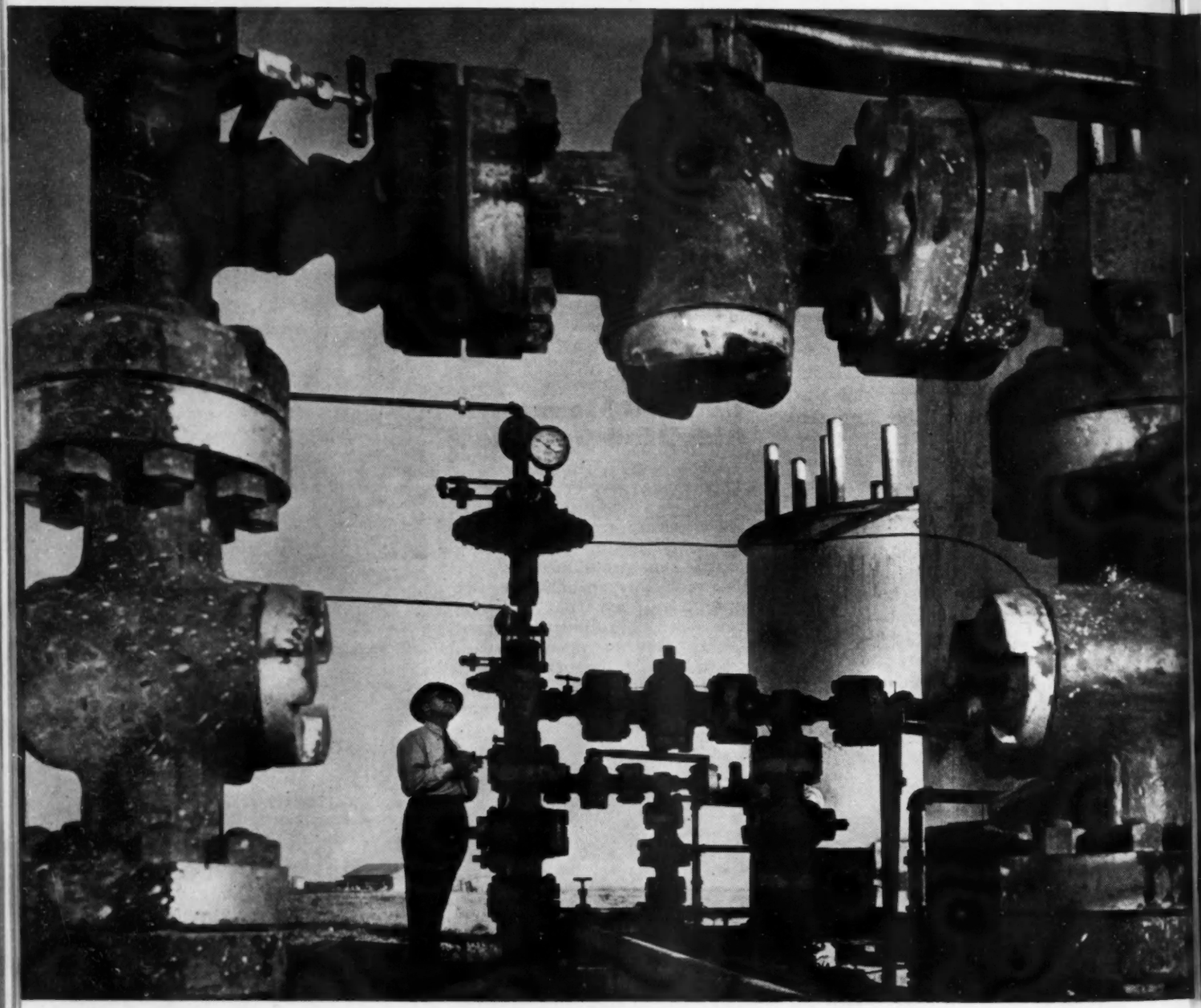
6. CATLINE

Formed Pipe Guide Reduces Rope Wear

Formed and belled pipe, attached to the derrick, guides catline to cathead.

CONTINENTAL Oil Company uses a guide for the catline on drilling wells on the Grubb lease, near Ventura, which is made of light-weight pipe, belled at each end and attached to girts and braces of the rig above the cathead where the line is to be employed. The belled ends are carefully smoothed to offer low resistance to movement of the line, and to prevent chafing so that longer life may be expected for the manila rope under usual service wear.

4 MISSION VALVE features insure perfect sealing, easy turning and longer valve life



Leading drilling contractors and major oil companies have proven by actual competitive field tests that in all types of service Mission Plug Valves outwear and outlast other plug valves.

If you want to reduce plug valve problems—and save money—make your next plug valve a Mission.

1. Automatic Lubrication.*
2. Full-Port Lubricant Sealing Grooves.
3. Wedge-Proof cylindrical Super-Surfaced Core.
4. Sealing Grooves on Plug never pass Ports.

1. **AUTOMATIC LUBRICATION**—Provides a constant lubricant seal • Line pressure automatically forces lubricant from reservoirs to sealing grooves • Eliminates necessity of frequent operation of lubricant screw • Ample downstream (sealing end) lubrication • Reduces friction—valve turns easily • Reduces wear and extends life of valve

2. **FULL-PORT SEALING GROOVES**—Sealing grooves encircle ports — assures complete uniform seal • Provides a dependable seal against high pressures, liquid or gas • Full-Port Lubrication thoroughly lubricates core — valve operates easily • Reduces washouts • Reduces wear and extends life of valve

3. **WEDGE-PROOF SUPER-SURFACED CORE**—Cylindrical Core positively cannot wedge—permits easy turning • Perfect fit of core to body conserves lubricant and maintains leakproof seal longer • Lubricant lasts longer . . . saves time . . . saves valves • Super-Surfaced core provides extra resistance to abrasives and corrosion agents • Reduces wear — lasts longer

4. **SEALING GROOVES ON CORE**—Never exposed to fluid • Prevent loss of lubricant into fluid line . . . insures constant seal • Protects sealing grooves on core from direct cutting action of fluid • Lessens intrusion of abrasives into lubricant sealing grooves . . . reduces wear on vital sealing surfaces • Prolongs life of valve

*When lubricating a Mission Plug Valve, a portion of the lubricant is forced into reservoirs. Thereafter, the line pressure AUTOMATICALLY feeds this stored lubricant, as needed, into the downstream seal grooves. So long as lubricant remains in the reservoir a perfect seal is assured.

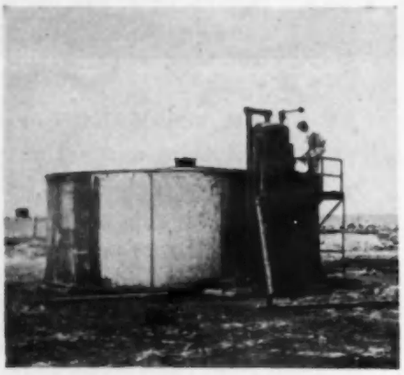
MISSION MANUFACTURING CO.

HUMBLE ROAD • HOUSTON, TEXAS
EXPORT OFFICE: 30 ROCKEFELLER PLAZA, NEW YORK

Practical Operating Hints for

1. EQUIPMENT

Skid-Mounted Set-Up Cuts Separator Time



Unitized and skid-mounted separator permits rapid potential testing.

SEVERAL operators in the Slaughter and Wasson fields of West Texas are effecting a saving in completion costs by use of skid-mounted, unitized separators and gauge tanks that can be moved to any part of the lease and set up in a very short time. Use of a unit of this type enables operators to take potentials and start production schedule before the location has been cleaned up, or lead lines laid to new tank batteries. One pipe connection handles all inflow as skid leg serves as gas vent.

Tanks used are the low 500-barrel size, mounted along with the separator on a skid base of 6-inch casing. The unit is easily skidded between wells on the lease, or picked up and moved by truck if the distance is too great for skidding.

Separated gas from the gas trap is exhausted through one of the skid pipes and blown to the air on the far side of the tank. By using this tank, any drilling fluid or drilling water that might be produced during the initial potential is thus kept separate from clean oil that would normally be held in the central tank battery.

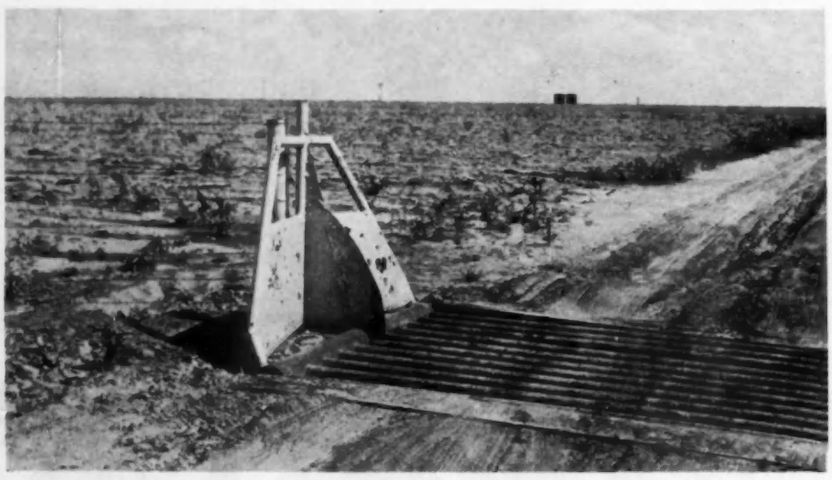
2. ENCLOSURES

Effective Guards Stop All Stock

IN SOME West and Central Texas areas, it is necessary for oil companies to protect themselves against possible escape from lease confines of sheep and goats, as well as cattle. Cattle guards often prove insufficient for sheep and goats, as the smaller animals are able to walk across the supporting member of the guard on either end, near the point where the regular fencing begins.

One company, after experiencing difficulties of this nature, solved the problem by welding a small section of sheet steel to the supporting post at each end, and at right angles to the roadway in such a way that smaller animals could not walk across.

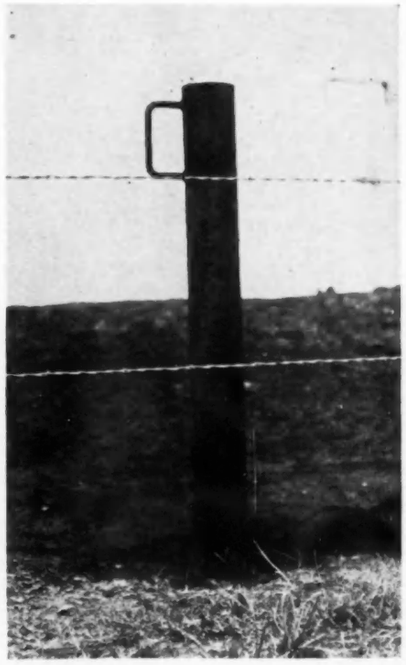
Very little extra work or expense is involved in setting up this extra protection. The individual units are almost entirely made up by the welder in the shop, and consist largely of two-inch pipe and sheet steel. In setting up the guard in the field, the field welder has only a few points to spot-weld to the supporting member of the cattle guard.



This wing-equipped guard blocks the cross member against sure-footed stock grazing on the lease.

3. DRAINAGE

Inclinable Drain Pipe Seals Fire Wall



Swinging on its supporting ell, this drain pipe holds water seal in wall.

ONE company on the Texas Gulf Coast regulates drainage of oil or water from inside the area bounded by tank battery firewalls by using a short piece of 4-inch pipe screwed into an ell and fitted to the end of the regular drain-pipe extending from under the wall. The 4-inch pipe is usually kept in upright position, but the connection at its bottom is sufficiently loose to allow rotating in horizontal position when desired.

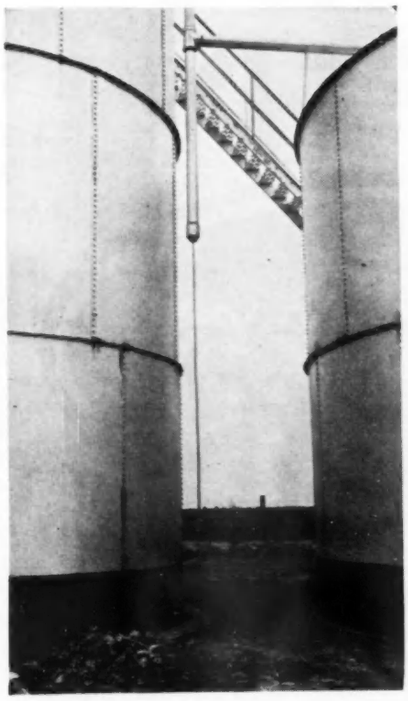
The top of the pipe is higher than the firewall, and water or oil that would usually run out of the drain at the corner of the dike is retained inside and prevented from leaving the enclosure, being of

THE PRODUCTION MAN . . .

particular advantage in case of overflow or breakage of the tanks or, in case of fire, to prevent spreading of the burning fluid. By lowering the top of the pipe to ground level fluids inside the wall drain from the enclosure, manipulation of the drain facilitated by a handle made of sucker-rod material welded near its top.

4. TANK CARE

Drop Leg Drain Traps Moisture



Tee and drained drop trap and remove the moisture carried by vented gases.

CONDENSED moisture from the vent line often proves troublesome to operators by emptying into stock tanks. The vent line usually conveys vapors from the gun barrel by passing directly over the tanks, connected to dome on top of the tanks to allow escape of vapors from the stored oil. This moisture, deposited in the tanks, must be removed before transfer of oil to the pipe lines. One operator, however, removes moisture from the line before it enters the tanks by utilizing a small pipe for its drainage.

After removing the ell where the 4-inch vent line from the gun barrel turns toward the storage tanks and replacing it with a 4-inch tee, a 6-foot joint of 4-inch pipe is attached vertically to serve as settling chamber for fluid. A bushing at the lower end of the pipe is connected to a ½-inch pipe which extends to the ground, leveled off and buried in a shallow ditch, extending horizontally under the firewall and ejecting the drained water outside the tank battery area.

The ½-inch drain pipe is equipped with a valve located 3 feet off the ground and in position to permit easy operation by the pumper. Water which would otherwise be carried across the tanks and dropped inside is thus effectively diverted, reducing the production problem in disposing of undesirable fluids mixed with clean oil produced.

5. EMULSIONS

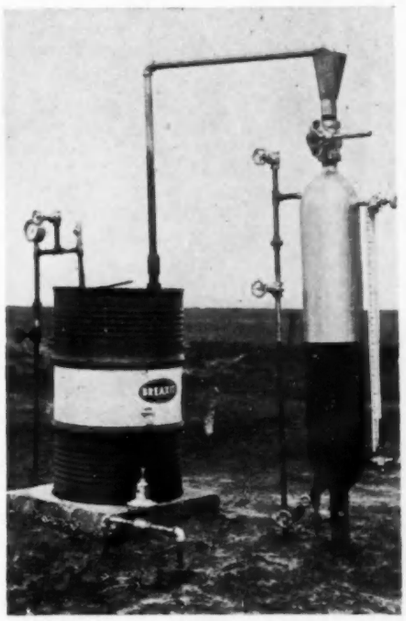
Chemicals Handled By Gas Pressure

IF GAS pressure is available in an oil field, it may be utilized to transfer chemicals from the containing drum into a metering cylinder, and thence at a regulated rate of flow, into the lines for mixing to treat emulsified production.

One operator constructed a concrete base approximately three feet square for supporting the drum containing the chemical. A 1-inch pipe which leads from a gas line connects with a fitting on top of the drum, and is equipped with a gauge for determining pressure, as well as a valve for regulating amount of gas admitted through the lines and a vent line which is also furnished with a shut-off valve. A reducing regulator on the line is set to lower pressure to the small amount necessary.

A 1½-inch discharge line which extends deep inside the drum, leaves from its top, and by means of an ell a continuation of the line is directed to the metering chamber. Gas pressure in small amounts applied to the drum forces chemicals from the drum through the pipe and into a funnel which is placed on top of the receiving receptacle.

This chamber, a cylindrical container made of large pipe, is set vertically on the ground, having a glass gauge for determining height of fluid level. A ½-inch line tied into the gas line is attached to the top of the cylinder, with a vent line for relieving pressure when desired and valves for controlling amount of gas admitted. When the required volume of fluid from the chemical drum is flowed into the cylinder, a valve beneath the funnel is closed; then pressure from the gas line is directed into the cylinder, forcing the chemical from the metering chamber at the proper rate, and into the flow line from the well for thorough mixing with the production before it is deposited in the gun barrel for settling.



Regulators, valves and vents permit gas to transfer and feed chemicals.

THE practical operating hints for the drilling rig and production man, appearing in these features each week, are secured from oil fields everywhere and offer suggestions that will help to improve field efficiency and safety. The items give an excellent picture of the remarkable ingenuity being exercised by the operating divisions of the industry. Contributions to these features will be paid for at the rate of $5 for each illustrated item accepted. Address contributions to "The Editor, THE OIL WEEKLY, Houston."

ON *Longer* STRINGS... AT *Higher* PRESSURES

TOOL JOINTS NEED

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As bits drive deeper and deeper in search of oil, terrific strains are set up in the tool joints. To withstand these strains, manufacturers design stronger and heavier tool joints, and Thredkote 705 was developed to help these special joints do a better job. Thredkote 705 provides a positive seal against extreme pressures yet connections lubricated with it are easily broken out. It prevents metal-to-metal contact or thread galling even under the tremendous torques exerted by miles of turning drill pipe.

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HUMBLE OIL & REFINING COMPANY

HOUSTON, TEXAS

HIGHLIGHTS IN THE WEEK'S NEWS

Allowables

Humble Cites Cold-Test Oil Shortage at Texas Hearing

The Texas Railroad Commission, at a statewide hearing September 18, announced that it was considering an order which would radically revise the marketing situation in the state. Commissioner Jerry Sadler announced that the commission had under advisement an order which would require that before any oil be moved from a field, the demand of local refineries and purchasers be satisfied first. This order, Sadler said, would be entered if it is legal. The new plan would solve a problem which has been before the commission for months. Olney Refining Company at Wichita Falls, Danciger Refineries at Pampa, Col-Tex Refining Company at Big Spring, and other refineries supplying the inland areas have frequently complained that though they are in the midst of an oil area, they are unable to buy enough oil to operate at capacity. Olney Refining Company, for instance, had been closed down as much as 12 days in one month.

Appeals have been made to the commission repeatedly; but without raising the allowable for particular wells, or for some particular fields to which a line might be connected, there seemed to be no way to supply this local market. The new order which Sadler described may offer a solution.

Short on Navy Contract

Humble Oil & Refining Company requested increase in the allowables assigned to fields producing low-cold test oil. Included in this group of fields were Amelia, Clear Lake, Thompson, Webster and Sugarland. Rex Baker, attorney for the company, said it needed all it had nominated and he felt sure that the low-cold-test oil nominated by other purchasers represented a firm demand. The additional oil is needed primarily for defense purposes and to fill existing commitments, Baker explained. He said that Humble had been forced to refuse a contract offered by the Navy because the company could supply only 3500 barrels of a 14,0000-barrel contract which was offered. The refusal was necessary because the company was 3000 barrels short already on commitments which were outstanding.

Baker reminded the commission that the Petroleum Defense Coordinator, at the instance of the Texas Railroad Commission in part, had arranged to have lend-lease purchases divided equally between Gulf Coast producers and those producing in South America. Unless the commission permits the operators to produce the oil, more of the purchases will be diverted to South America, as was the naval contract, Baker declared.

Questioned concerning the accuracy of nominations filed, which were ordinarily about 500,000 barrels in excess of Bureau of Mines estimates and the actual production from Texas fields, Baker said that nominations for low-cold-test oil were not in line with those for other oils. He thought they more nearly represented a true condition in the case of low cold test. While nominations for other oils are about 30 percent above state allowables, those for low cold test are 55 percent above the allowables.

He said that the Humble has nominated 33,000 barrels a day, and gets only 24,100 barrels, leaving it about 12,000 barrels short. Gulf Oil Corporation, Texas Company, Stanolind Oil & Gas Company and Crown Central Petroleum Corporation, the other principal purchasers of low-cold-test crude oil, nominated 35,800 barrels daily. They get 23,700 leaving them approximately 12,000 barrels short. He thought that all of this additional oil could be readily absorbed to fulfill daily contracts. While Baker had been questioned by Sadler concerning the accuracy of nominations, the commissioner admitted readily that in his opinion, there was an actual demand for low-cold-test oil, and he asked Baker whether the formula under which the commission prorates oil should be revised. Baker said the company wanted no favors, and thought that the formula should be retained.

Should Follow Bureau

Likewise, in response to Sadler's question, Baker thought the commission should follow the Bureau of Mines as a general policy. He pointed out, however, that the bureau may be lagging behind, since production is about 80,000 barrels daily under consumption. That is, about 80,000 barrels daily is withdrawn from stocks of Texas oil, and has been withdrawn daily since July.

[*Continued on page 51*]

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Associations

Aviation Gasoline Making Capacity Must Be Expanded

The urgent need for expanding the United States capacity for manufacturing aviation gasoline, if American, British and Russian air force requirements are to be fulfilled, was stressed at the annual convention of the National Petroleum Association, held in Atlantic City last week. The problem is not simple because of the shortage of steel and tetraethyl lead; scarcity of the latter may make it necessary to lower octane specifications on civilian motor fuel it was warned. Three different speakers, one a British government oil representative, held this as one of the industry's major wartime problems.

British Oil Requirements

British requirements of ordinary motor fuel are being met successfully, according to William Piercy, economist and British government oil representative, who spoke to the association Septemper 18. However, he asserted lubricant needs are not met so easily and specifications for these have been altered to permit American suppliers to meet requirements. Lubricant consumption is not much more than what it was before the war, the increased use by military forces being compensated by reduced consumption by civilian population.

There has been a marked increase, Piercy pointed out, in requirements for 100-octane aviation fuel, as a result of expansion of the British air force and prospect of supplying Russian requirements. This is a major problem, and will increase in magnitude.

Close coordination of British oil companies and a government-industry combination characterize Britain's successful efforts to meet war time requirements for fuels and lubricants, he stated. Equally important is the working out of agreements between Britain and the United States for supplies under the lease-lend act, and British oil is coming from the Western Hemisphere with the exception of supplies for forces in Africa, the Near East and India, which are taken from refineries in the Near East.

British oil companies have merged themselves into a petroleum board to pool their resources, reduce costs, eliminate duplication and function closely with the government's petroleum department. In moves to reduce consumption and tanker requirements, gasoline rationing has reduced the use of fuel by private motorists to one-third the normal volume, and only one grade of motor fuel is sold to effect economies in storage and supplies. Refining is virtually eliminated, a development resulting in a saving of 15 percent in tanker capacity following importation of refined products instead of crude oil. Elimination of numerous grades of products and standardization on a few is in force to simplify securing oil from

the Western Hemisphere, Piercy said.

The manufacture of 100-octane aviation gasoline must be expanded, declared W. W. Gary, director of refining for the Office of Petroleum Coordination, in discussing refining for national defense.

One of the critical problems resulting from the war is that of priorities for materials for maintenance of existing equipment and construction of new plants, Gary stated. Thus far, he continued, applications for preference ratings to secure materials used in maintenance have been delayed by an enormous volume of such applications; but OPM recently adopted a revised system of handling these which should go far in alleviating the present critical situation. OPM and the petroleum coordinator are working together on the problem of providing a broader priority rating to the industry to assure continuous operation.

Because of limited supplies of steel and heavy demand, Gary asked that the industry take all possible steps to avoid expansion of unneeded refining facilities. Modification of existing equipment rather than new construction should be tried first.

However, Gary saw one phase of refining in which great expansion is imperative. That is production of 100-octane gasoline. Due to rising demands of American, British and Russian military aviation, the possibility exists that present output of this fuel may have to be doubled. The five district committees on refining have set up subcommittees to study the present output and methods of raising it. Each refinery has been asked to submit a plan specifying its potential production of raw materials going into 100-octane fuel and describing limitations of such production. Plans are being considered to protect refiners installing aviation gasoline equipment against investment losses resulting from possible later shrinkage of aviation gasoline markets, and a general announcement of policy on this matter may be made soon.

Despite present shortages of materials, an expansion of refining in some areas may be needed. The present large domestic demand and the demand from overseas are beginning to tax American refining capacity. Extraordinary military requirements are developing for heavy fuel oils and lubricants.

A serious situation exists in manufacture of tetraethyl lead, Gary said. A heavy drain on raw materials used in its manufacture is present. This, coupled with the fact that increasing quantities of the product are used in making aviation fuels, makes it possible that octane specifications for motor fuel may have to be lowered. The five district committees on refining have been asked to appoint subcommittees to study the situation.

Refining Capacity Crowded

R. K. Davies, deputy petroleum coordinator, also stressed the need for expansion of refining facilities, especially that for making aviation gasoline, in his speech to the assocation in addition to taking the oil companies to task for their failure to stress the reality of the East Coast oil shortage.

With one or two exceptions, Davies asserted, the oil companies have failed to assist the coordinator in stressing the reality of the East Coast oil shortage, which certainly exists although various steps have been taken that have made up more than half of the original transportation deficiency of 350,000 barrels per day.

Insufficient stocks exist on the Atlantic Seaboard, which constitute a shortage, Davies pointed out. More of the oil companies should inform public opinion on this matter, and thus eliminate the confusion and uncertainty on the subject.

The industry also faces the fact that its total effective refining capacity is crowded almost to the limit, Davies continued. Excess capacity shown statistically is deceptive because for the most part it consists of old equipment which would require extensive alteration in order to produce products to meet modern requirements. Particularly necessary, he said, was the expansion of capacity for making 100-octane gasoline at a rate double the present level. The coordinator's office is working to secure materials for aviation gasoline units, arrange loans for construction and secure contracts to market the gasoline.

The oil industry is making a notable record in supplying fuels and lubricants to the British and their allies. Growing needs of the British and the United States own war machine, however, make some expansion of American refining capacity almost inevitable, he said.

Must Produce Ten Percent More Yet Use Less Steel

The Army and Navy and civilian needs program requires a continuous flow of petroleum products and natural gas, and it is anticipated the industry will be required to produce 110 percent of the 1940 production during the balance of 1941 and 1942, E. O. Buck, assistant director of production, District 3, Office of Petroleum Coordinator, told the Houston Geological Society September 18.

This increased production must be maintained with but 70 percent of the steel and critical priority materials consumed by the industry in 1940, he said.

"The obvious solution when the problem is first presented is, all right, we can produce more oil from present prorated wells and can somehow manage on 70 percent of the material by curbing development, why not cut operations 30 percent and increase production?

"The answer is that unless needs are anticipated and priorities granted before they arise, this 70 percent of 1940 material will not be available for the industry, but will be diverted into other channels for defense.

"The OPC, in forecasting needs, believes that three vital steps must be taken to give the necessary material to satisfy demands that will be made upon the producer in the way of uninterrupted production, and the transporter and the refiner for moving petroleum products to the consumer."

Buck explained the first of these vital steps is that present wells now completed and producing must be used to the best advantage and kept producing at a rate sufficient to satisfy defense needs.

"This can only be obtained by having on hand at all times enough supplies and material to satisfy demand for maintenance and emergency repairs. In the past when the price of oil has been low, or price of replacement material expensive, it has been the policy in certain areas to abandon marginal and submarginal wells. This salvaged material is then put in areas where more prolific producing wells can be drilled. A survey now being conducted, but not complete, indicates that approximately one third of United States production is represented by marginal and submarginal wells. If necessary equipment is not made available for immediate use when needed, much of these reserves will be prematurely abandoned and forever lost to the industry."

Second serious concern of OPC, he explained, is discovery of new reserves to offset production withdrawn from present fields.

"Tendency of any operator who wishes to increase his production, and particularly when material is scarce or expensive, is to drill where he knows that a producing well is reasonably assured. Net result of this operation, drilling in proven areas, temporarily increases production but fails to add new reserves. Exploratory or wildcat development must be stimulated to a point that when this emergency period is over, new discoveries will offset extraordinary production from present producing wells."

Third serious concern of OPC, Buck outlined, is orderly development of present proven but undeveloped reserves and newly discovered fields so that production rates can be maintained on an efficient conservation program without waste with a minimum number of wells.

Buck said the OPC will be held responsible by SPAB for its priority recommendations. "Some materials now listed on the critical priorities list are becoming increasingly harder to obtain and it is believed that in a very short time none of these materials will be available except by priority rating or classification by SPAB.

"To relieve the immediate shortage, OPC has been in contact with manufacturers, producers, jobbers and supply people, ascertaining available stocks and their needs for a four-month period, beginning September 1, based on performance in the preceding four months of 1941. The survey is practically completed and it is expected that a request will be made soon to SPAB for necessary materials to last over the four months.

"OPC, after obtaining this material, is suggesting to the producing, transporting and refining companies that they assist in working out simple but efficient machinery for disbursement. Emergency repairs, maintenance for producing wells, transportation systems and refineries must from necessity carry a high priority rating because these facilities are now in operation. These supplies should be available at all times and replacements to supply stores should be made at sufficiently short intervals to assure the industry that its requirements will be available."

Buck advised that a detailed study should be made of every producing field so that a priority rating can be given according to needs. The geologist and engineer will be called upon in many ways to advise and recommend short cuts to conservation of vital equipment.

At this time, he said, OPC is attempting to get necessary critical materials into hands of mills, manufacturers and supply stores. Next step will be disbursement so that depleted stocks can be replenished monthly.

South Texas Geologists' Fall Field Trip Goes Into Mexico

South Texas section of the A.A.P.G. has announced its thirteenth annual meeting and field conference at Monterrey, Mexico, October 31, November 1-2, 1941.

Field conference will convene at Laredo, Texas, Thursday night, October 30 and on Friday, October 31 the group will proceed to Monterrey making a detailed surface study of the Claiborne, Wilcox and upper and middle Cretaceous formations.

Program will be held November 1 in Monterrey where Carrizo-Wilcox problems will be discussed. Also scheduled is a symposium on Cretaceous and Jurassic formations. Discussions will be supervised by authorities on the subject. On November 2, a field trip will be made a short distance west of Monterrey to study the lower Cretaceous and the Jurassic. J. E. Shaw, Apartado 416, Monterrey, will handle hotel reservations.

Courts

Illinois Production Tax Challenged in Series of Suits

Constitutionality of Illinois recently enacted oil-production-tax law is challenged in a series of suits filed in Sangamon County Circuit Court at Springfield by five oil companies and two property owners.

Circuit Judge Lawrence Stone granted temporary injunctions September 17 to Shell Oil Company, The Texas Company and Sohio Corporation to prevent state officials from disposing of Taxes paid by the firms under protest.

The companies seek a refund of approximately $123,000 in taxes paid since the law went into effect July 1. Shell Oil Company was first to file suit and first to receive a temporary restraining order.

September 18 Adams Oil & Gas Company and The Felmont Corporation filed joint actions seeking refund of $1489 in taxes, and A. W. Gerson and Hattie H. Gerson, owners of extensive property holdings near Centralia, followed with similar suits.

Defendants are State Treasurer Warren Wright and Finance Director George B. McKibbin. The new law is slated to yield approximately $3,500,000 annually as part of the current budgetary program of Governor Dwight H. Green.

The new tax agency part of the state finance department, has no connection with the newly created Oil and Gas Conservation Division of the State Department of Mines and Minerals.

The Texas Company in its action charges the law is unconstitutional because "discriminatory" and arbitrarily classifies persons producing oil which amounts to an attempt to illegally levy such a tax against persons not so engaged.

The act provides for a 3 percent tax on value of oil produced with the levy to be borne by each person in proportion to interests in the value of the oil.

The Texas Company attorneys declared the firm is required to pay a tax on oil owned by Shell Oil Company and delivered to The Texas Company, and also on oil produced from leases in The Texas Company in which Shell Oil Company has a royalty interest. Sohio Corporation based its action on similar grounds and objected particularly to provision of the law which requires any person with a royalty interest to pay the tax.

The persons in the suit contend the act is unconstitutional because of the law's "unreasonable classification of persons subject to the tax." Bulk of the oil produced by wells owned by the Gersons in the Centralia field is sold to Sohio Corporation, and the latter has been deducting the amount of the tax from the purchase price since July 1.

Allowables

[*Continued from page 49*]

Baker expressed the opinion that the actual production had been below the bureau estimate.

He recalled that during 1941, Texas production had been only 35.4 percent of the total United States production, and advocated allowables set very close to Bureau of Mines estimates in an effort to bring up this percentage.

Baker said that so far transportation difficulties had not interfered with Humble's operations. The company had been able to get boats when they were needed, and he could not tell where the reported transportation problem was really having an effect.

Both Magnolia Petroleum Company and Sun Oil Company urged the commission to grant Humble's request. Both companies have contracts to purchase low-cold-test oil from Humble, and neither has production of this grade of oil in Texas. Unless allowables are increased, Humble has notified the companies that these contracts must be discontinued January 1.

Octane Classifications

The problem of Southern Minerals Corporation operating at Corpus Christi was considerably different from that of Humble. Because it had been unable to get tankers, the company had developed local markets, selling high-octane crude oil to local refineries. Recently, however, it had found difficulty in disposing of all the oils, especially the lower grades below 60. To correct this situation, James Doughty, representing the company, urged that the commission revise its classification of crude oils with an octane rating above 50.

H. P. Nichols, speaking for the East Texas Oil Association, said that reports reaching the field indicated a materially increased demand for East Texas crude oil. He said American Liberty Oil Company had offered a premium of 5 cents per barrel for connections, and that Pan American Production Company was offering a two-year contract. He urged the commission to give the East Texas field two or three more producing days during October, which would allow the production of the additional oil needed.

E. R. Turner, representing the Pan American Production Company, said that there was no foundation for the statement that the company is offering a premium. It would like to buy more East Texas crude, Turner said, but will offer no premium to get it.

Speaking for Sinclair Prairie Oil Marketing Company, Paul McDermott asked the commission to grant higher allowables for the North Texas, West Central Texas and Panhandle. He said that the Bureau of Mines estimated demand for the Mid-Continent area included these portions of Texas. He insisted that most of the oil withdrawn from storage currently was of a grade produced in these three districts, and that Oklahoma and Kansas operating at capacity, as they are now, could not supply the difference. He urged that Texas be given the opportunity to supply the extra oil.

Arkansas Commission Hearing At Magnolia September 24

The Arkansas Oil and Gas Commission has called a hearing at Magnolia, at 10 a. m. Wednesday, September 24, to determine if waste is taking place in any of the state's fields discovered since January 1, 1937, to determine equitable withdrawals for these pools; to hear evidence regarding rules for an apparent new field in Section 29-17-24, LaFayette County.

The commission will also seek evidence on the Dorcheat pool, Columbia County, to determine if waste is taking place and will hear recommendations of the Dorcheat Operators Committee, named last June 20 to make an engineering study of the area.

The commission also desires to hear evidence on the progress of desulphurization of gas produced at McKamie, LaFayette County, and further to inquire of operators in that field of plans concerning utilization of the gas being currently produced there.

The docket will also be re-opened on the Schuler Jones sand pool, Union County, to hear evidence as to whether an order in reference to unitization of that pool should be amended.

Socony-Vacuum Head Stresses Need for Economy

John A. Brown, president of Socony-Vacuum Oil Company, Inc., and chairman, under the Petroleum Coordinator, of District Number 1, comprising 17 states in the Eastern area, has issued the following statement:

"As chairman of the general committee for this area, I endorse the statement made by Deputy Petroleum Coordinator Ralph K. Davies that we should continue to curtail gasoline consumption here in order to avoid the possibility of an embarrassing shortage of petroleum products during the coming months.

"The question is asked why we should economize in the use of gasoline now when autumn is at hand and the big demand for gasoline is assumed to be past. It will surprise many people to know that while gasoline sales are heaviest in the summer, total demand for petroleum products in this area is from 40 to 45 percent greater in December than it is in July. This means that the industry must transport more petroleum into this region between now and the end of the year than would be required in the summer if present stocks here are to be maintained. Usually the industry draws somewhat upon these stocks in the eastern area during the

last few months of the year, but with the existing shortage of normal transportation and lack of certainty whether the tankers now in use will all remain in this service, the industry should try to keep these stocks as high as possible.

"To relieve the transportation shortage caused by diverting tankers to the aid of Britain the Oil Coordinator and the industry have cooperated in various ways such as changing the load line of tankers to increase carrying capacity and re-routing some tankers. By unusual pipe-line routing, new barge routes, extra use of railroad freight cars to the number of several thousand, with many more in early prospect for such use, all at abnormally high cost, and by all-around increased efficiency, the oil companies have been able to make up the transportation shortage to a very great degree. Public hardship has been avoided, and stocks of petroleum products were only 9,000,000 barrels, or 12 percent, less at the end of August than on that date last year. Nearly half of this decrease, however, is in industrial fuel oil, which is vital to the operation of our factories and the continuance of the defense program. As transportation facilities are interchangeable to a substantial degree, lower gasoline needs ought to improve the heavy fuel position.

"Figures showing the industry's present and probable future position in this area have been compiled by the Coordinator from reports sent to him by the individual oil companies. The Coordinator's office has informed us that these figures show that if present inventories are maintained and no more tankers taken out of service, there will be a shortage of petroleum products during the remainder of the year at an average of 174,000 barrels daily. Although any forecasts involve uncertainties this compilation is our best guide and shows that the industry should endeavor to transport more petroleum to the area than shown by these individual estimates.

"There are those who feel that the industry is sure to increase the volume transported into the area beyond its estimates so that with the stocks on hand there will be sufficient to take care of any demand. Without going into any analysis of this, it may be said that there are various uncertainties in such a guess and particularly that the opinion is based on the assumption that no more tankers will be diverted in the interests of national defense—an assumption which cannot safely be made. Moreover, as I said before, it would be prudent in times such as these to maintain our stocks of petroleum on a large scale. To assure that our factories will keep operating, to assure that our homes will be heated—we should at least continue the present curtailment of gasoline consumption until it is safe to discontinue it.

"The situation may perhaps be illustrated by comparing it with the position of a family with a certain supply of food in the house, who know that during the next few weeks they are going to get substantially less additional food supply than they would usually eat. That family would certainly know that they were short of food, and would take necessary precautions.

"The industry is increasing its efforts to find all possible means to make petroleum products available for the area in the largest possible volume. It is hoped that as a result of these efforts the outlook may soon improve."

Washington Roundup

[*Continued from page 14*]

mand that the major oil companies collect only 7 percent on their investment in pipe-line companies. If approved, the department would not press its suits under the Elkins Act.

To "clean up" the situation, the department, which has Elkins Act suits pending against Great Lakes Pipe Line Company, Standard Oil Company of Indiana and Phillips Pipe Line Company—"test" cases in which the companies are charged with taking rebates — would be withdrawn and one "all industry" suit would be entered in the District of Columbia Federal Court to be immediately settled by submission of the consent decree.

However, it was said, if the ICC grants the request that the Phillips line be denominated as a private carrier, the suit against that company might fall and it would be necessary for the department to prepare another plan of action. It is unlikely that any action will be taken until the commission decided the Phillips application.

Davies' Salary

Whether Ralph K. Davies continues to draw his $57,500-a-year salary from Standard Oil Company of California while serving as deputy oil coordinator became a live question during the week with the disclosure that the company, in a prospectus filed with the Securities and Exchange Commission on August 22, listed him as on leave of absence with pay.

Asked about the matter, Coordinator Ickes said he had no information, lauded Davies as one of the best of the more than 50,000 employes he has as a government official, indicated his disapproval of government employes drawing outside pay and promised to look into the situation, but refused to anticipate what action he might take if the charge was proven.

Ickes said he had an "understanding" with Davies when he appointed him as to where his responsibilities lay, and while the oil company's statement to SEC was that he was relieved of his duties so far as necessary that he might undertake his government job, so far as the coordinator is concerned that "means total leave."

The understanding was that Davies was to sever all connections with the company on entering his government employment. Department officials said he signed the regular statement required by law that his salary from the government is not being supplemented from any source.

Last week, officials of the Interior Department said Davies continued to draw salary from Standard Oil Company of California while serving as a "dollar-a-year" man before the coordinator's budget was approved, but relinquished his salary when he went on the regular government payroll. This week they suggested that the oil company's statement might have been prepared before the changeover and a correction overlooked when it was filed.

Allocations

Because it takes gasoline to move crops, the new Division of Civilian Supply in OPM, formerly part of Leon Henderson's OPACS, last week authorized the marketing committee for District No. 1 to increase deliveries in certain defined areas in Maine, North and South Carolina, Georgia and Virginia to 10 percent in excess of September, 1940, requirements, in order to move the potato and tobacco crops.

OPM also moved to relieve service-station operators who are suffering because they did not participate in price wars which occurred in certain areas in July and who, because they maintained their prices, suffered a reduction in gallonage.

A further step in the reallocation was to place Army post exchanges and Navy supply stores in Atlantic coast defense areas in the class of governmental buyers, permitting them to receive their minimum necessary requirements without any cut.

The kicker in the orders, however, was a provision that these adjustments must not disturb the overall 10-percent reduction below July deliveries.

Fuel Stocks Rise; But Crude and Gasoline Drop

Stocks of gasoline, light fuel oil and heating oil were increased but slightly by the running of the third largest volume of crude oil to refinery stills in history, and production of crude oil rose to another new all-time peak, according to latest industrial statistics covering the week ended September 13.

Crude oil production daily average was 4,033,700 barrels, 29,000 more than the previous peak established in the week ended August 30. The new rate of production was 386,300 barrels per day, or 9.6 percent, greater than the level at the corresponding period of 1940.

Crude runs to stills, in averaging 4,010,000 barrels daily, were 10.4 percent larger than a year ago, and resulted in the production of 13,460,000 barrels of gasoline in comparison with 11,921,000 barrels in the same week of 1940.

This relatively large output of gasoline, however, was not sufficient to fill requirements, and the country's gasoline stocks dropped again. Currently they stand at 80,555,000 barrels, the lowest level since last November, and 2.9 percent smaller than a year ago.

However, material increases were made to both light and heavy fuel oils, with the result that the stocks of the industry's three principal products rose 756,000 barrels despite the decrease of 1,016,000 barrels in gasoline. Apparently refiners had adjusted their yields so as to obtain more fuel oils and less gasoline.

Stocks of gas oil and distillates (light fuel oil) rose 1,144,000 barrels to 47,271,000 barrels and now are 1.5 percent larger than a year ago.

Stocks of residual fuel oil were increased by 628,000 barrels, but are still 10.8 percent smaller than on the same date of 1940.

Statistics on crude-oil stocks are available only through the week ended September 6, and in that week there was a withdrawal of 1,885,000 barrels. The new level of these stocks is 247,528,000 barrels, which is 15,188,000 barrels or 6.1 percent smaller than a year ago. This is the lowest figure for crude oil stocks since early March of 1940.

East Coast Fuel Stocks Are Increased Materially

The East Coast refined product storage situation was improved during the week by the largest increase made since the transportation shortage developed, a net increase of 975,000 barrels being made to the combined stocks of gasoline, light fuel oil and residual fuel oil. This brought the additions to Eastern stocks in the past three weeks to 2,166,000 barrels, or practically the same rate at which storage was increased during the same three weeks a year ago. However, because of earlier failure to approach the 1940 rate, the combined total of these three principal stocks on the East Coast, 45,897,000 barrels, currently stands 5,908,000 barrels below the level of a year ago.

However, the gain in Atlantic seaboard inventories the past week was due entirely to additions to fuel-oil inventories, gasoline stocks being drawn upon to the extent of 565,000 barrels. Consequently, existing gasoline storage of 19,238,000 barrels on the East Coast, are 2,378,000 barrels below the level of the corresponding date of 1940, having been drawn upon to the extent of 1,023,000 barrels during the past two weeks as more of the shipping facilities were devoted to moving of fuel oil because of approaching cold weather.

East Coast heating-oil stocks, naturally of much interest because cooler weather is due, rose 797,000 barrels during the week to 16,418,000 barrels where they were 1,134,000 barrels lower than a year ago. Recent weeks, however, have seen a substantial improvement in these gas oil and distillate fuel stocks, a total of 2,030,000 barrels having been added during the past four weeks, which has been but 70,000 barrels below the replenishment rate attained in 1940 during the same period.

Residual-fuel-oil stocks on the East Coast also were increased, rising 743,000 barrels, and currently amount to 10,241,000 barrels. At this level they are still 2,396,000 barrels under the 1940 standing of the corresponding time.

Figures on crude-oil stocks are available only up to the week ended September 6; however, latest weekly changes also showed an addition to these inventories on the East Coast. Additions to crude oil storage on the Atlantic seaboard amounted to 326,000 barrels, boosting them to 13,710,000 barrels.

Consequently, in all the addition to Eastern storage amounted to 1,301,000 barrels for crude oil, gasoline, light fuel oil and residual fuel oil during the latest 7-day period for which statistics are available.

Texas Gas Tax Law May Be Found Invalid

Attorney General Gerald C. Mann has ruled that Texas cannot collect a tax on imported gas. This opinion was given to State Comptroller George H. Sheppard.

Asked whether a company which owns no wells, produces no gas and purchases gas from producers in other states which is sold wholesale is liable for the tax, the attorney general ruled that it was not required to pay tax on gas bought and produced outside of Texas.

Neither is a company liable for a tax if it produced gas in Louisiana, transports this gas to Texas and sells it there.

The attorney general reasoned that the state was powerless to levy an oc-

Trends of Operations and Changes in Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	FUEL OIL STOCKS	
					Gas Oil & Dist. Fuels	Residual Fuel Oil
1939:						
April 22	3,526,700	3,280,000	277,156,000	[2]87,769,000	21,085,000	105,035,000
April 29	3,568,200	3,405,000	278,440,000	86,794,000	[7]25,844,000	[7]108,409,000
May 6	3,580,900	3,275,000	[3]278,607,000	86,216,000	26,167,000	108,597,000
August 5	[2]3,909,400	3,445,000	268,982,000	76,431,000	35,601,000	114,512,000
August 26	[1]1,690,800	3,475,000	246,982,000	73,475,000	37,722,000	116,237,000
October 7	3,435,850	3,505,000	231,564,000	[5]71,152,000	38,549,000	114,397,000
October 21	3,771,550	[2]3,650,000	[3]229,127,000	72,122,000	39,358,000	115,060,000
1940:						
January 27	3,611,600	3,470,000	237,339,000	87,914,000	27,407,000	103,015,000
February 24	3,732,100	3,490,000	240,836,000	96,719,000	25,390,000	103,419,000
March 30	3,841,250	3,585,000	250,561,000	101,370,000	23,778,000	105,081,000
April 20	3,858,550	3,535,000	254,881,000	[1]102,817,000	24,779,000	103,323,000
April 27	3,845,250	3,555,000	256,670,000	102,452,000	24,997,000	102,552,000
May 25	3,835,650	3,580,000	259,330,000	100,297,000	28,356,000	104,015,000
June 22	3,846,450	[2]3,690,000	260,891,000	97,276,000	32,751,000	104,683,000
June 29	3,639,550	3,625,000	262,059,000	95,142,000	33,590,000	104,486,000
July 27	3,690,400	3,555,000	262,579,000	90,173,000	38,981,000	105,924,000
August 31	3,501,350	3,575,000	265,865,000	85,393,000	44,766,000	108,774,000
September 28	3,799,950	3,600,000	263,609,000	82,273,000	47,986,000	108,450,000
October 26	3,640,300	3,565,000	262,746,000	80,891,000	[1]48,893,000	108,475,000
November 9	3,584,200	3,510,000	261,631,000	[6]79,847,000	48,408,000	107,687,000
November 30	3,335,050	3,510,000	262,679,000	80,284,000	46,212,000	106,618,000
December 28	3,385,500	3,585,000	261,552,000	83,274,000	42,266,000	102,620,000
1941:						
January 25	3,599,100	3,625,000	260,093,000	88,762,000	39,039,000	100,297,000
February 22	3,629,650	3,590,000	261,783,000	95,812,000	34,381,000	98,631,000
March 29	3,746,550	3,625,000	266,187,000	[2]99,727,000	29,949,000	96,152,000
April 26	3,726,850	3,675,000	266,149,000	96,647,000	29,543,000	94,732,000
May 31	3,786,100	3,699,000	262,356,000	93,845,000	33,524,000	92,757,000
June 28	3,847,250	3,930,000	259,399,000	91,461,000	35,732,000	92,896,000
July 12	3,870,750	[1]4,090,000	255,567,000	89,561,000	37,812,000	92,699,000
August 2	3,695,250	3,845,000	252,535,000	86,779,000	41,433,000	94,800,000
August 9	3,911,950	3,835,000	251,945,000	86,022,000	42,136,000	95,412,000
August 16	3,953,300	3,920,000	251,013,000	83,777,000	43,558,000	94,752,000
August 23	3,975,450	3,975,000	248,910,000	82,566,000	44,282,000	94,308,000
August 30	4,004,700	4,070,000	249,413,000	81,672,000	45,351,000	95,052,000
Sept. 6	3,814,950	3,995,000	247,528,000	81,571,000	46,127,000	95,125,000
Sept. 13, 1941	[4]4,033,700	4,010,000	.....	80,555,000	47,271,000	95,753,000
Sept. 14, 1940	3,647,400	[8]3,592,000	[4]262,716,000	82,983,000	46,556,000	107,335,000
Change in past year	+9.6%	+10.4%	—6.1%	—2.9%	+1.5%	—10.8%

[1] All time peak. [2] Peak for year. [3] Lowest since April, 1922. [4] Stocks Sept. 7, 1940.
[5] Lowest since October, 1922, due to shut down of six Mid-Continent states. [6] Lowest for year.
[7] Prior to April 29, 1939, data did not include stocks at terminals, in transit, etc., except in California
[8] August-September, 1940, daily average

Wholesale Prices of Refined Products in Principal Markets

REFINED GASOLINE	Range Last Week (Cents a gal.)		Changes from Week Before	
Oklahoma Refineries:				
60 Octane and Under	5⅛	5⅝	...	...
63-66 Octane	5⅝	6	...	...
72-74 Octane	6	6⅝	...	...
80-82 Octane, Ethyl	6⅝	7¼	...	...
Mid-Western Tank Car:				
60 Octane and Under	5⅛	5⅝	...	...
63-66 Octane	5⅝	6	...	...
72-74 Octane	6	6⅝	...	...
80-82 Octane, Ethyl	7⅛	7⅝	...	...
New York Harbor:				
68-70 Octane	8	8	...	...
72-74 Octane	8	8½	...	...
Min. 80 Octane, '39 Research	8½	9	...	...
Gulf Coast:				
60 Octane unleaded	5½	5¾	...	...
65 Octane unleaded	5¾	6	...	...
68 Octane unleaded	6¼	6½	...	...
70 Octane unleaded	6¼	6⅝	...	...
72-74 Octane leaded	6¼	6⅝	+¼	+⅛
Min. 80 Octane, '39 Research	6½	6½	+¼	...
NATURAL GASOLINE				
Grade 26-70:				
F.O.B. Group 3	4⅝	4⅝	+⅛	+⅛
F.O.B. Br'kenr'ge, Tex.	4¼	4¼	...	...
KEROSENE				
Oklahoma Refineries:				
41-43 water white	4⅝	4¾	...	...
42-44 water white	4½	4⅞	...	...
Mid-Western Tank Car:				
41-43 water white	4⅝	4¾	...	...
42-44 water white	4½	4⅞	...	...
New York Harbor	5⅝	5¾	...	...
RANGE OIL				
At Oklahoma Refineries	4	4⅜	...	...
In Mid-Western Market Group 3, basis	4	4¼	...	...
LIGHT FUEL OILS				
Oklahoma Refineries:				
No. 1 straw	3½	4⅛	...	...
No. 3	3⅝	3⅝	...	...
Mid-Western Tank Car:				
No. 1 white	3⅝	4⅛	...	...
No. 3	3⅛	3½	...	...
New York Harbor:				
No. 1	5⅝	5⅝	...	...
No. 3	5¼	5¼	...	...

HEAVY FUELS	Range Last Week (Per Bbl.)		Changes from Week Before	
Oklahoma Refineries:				
No. 6	$0.80	$0.90	...	...
Mid-Western Tank Car:				
No. 5	.85	.85	...	...
No. 6	.85	.87½	...	...
New York Harbor:				
No. 5	1.65	1.75	...	...
No. 6	1.35	1.50	...	...
BUNKER C FUEL OIL (Per barrel, ships' bunkers)				
Gulf Coast	$0.85	$ .95	...	...
New York Harbor	1.35	1.50	...	...
DIESEL OIL (Per barrel, ships' bunkers)				
Gulf Coast	$1.55	$1.55	...	...
New York Harbor	2.15	2.15	...	...
Los Angeles Basin 27 gravity	1.05	1.15	...	...
LUBRICATING OIL (Cents a gal.)				
Oklahoma Refineries:				
Bright Stock, 150-160 viscosity at 210° 10-25 pour test	21½	22½	...	+½
Neutral oil pale No. 3 Color, 150 viscosity at 100°, 0-10 pour test	13½	14½	...	...
Western Pennsylvania:				
Bright Stock, 145-155 viscosity at 210°, 25 pour test	25	28	...	...
Neutral Oil No. 3 Color, 150 viscosity at 70°, 25 pour test	33	34	...	...

cupation tax on the business of producing gas where the gas is produced any place outside of Texas. Several other points in the law are now under consideration and it is possible that the entire gas tax statute passed by the last session of the Legislature will be found invalid.

Australia Plans Increasing Alcohol Fuel Output

A special investigating committee has recommended to the Australian Government that government assistance be provided, if necessary, to bring about a large-scale increase in Australian production of power alcohol for use as motor fuel.

At present between 3,000,000 and 4,000,000 gallons are made annually and the committee estimated that by working three shifts a day this could be boosted to between 7,000,000 and 8,000,000 gallons without increasing plant capacity.

The committee urged the government to adopt a long-range plan for production of power alcohol, and suggested the ultimate aim should be about 50,000,000 gallons annually for use with gasoline. Gasoline rationing has been in effect in Australia since around the beginning of the war.

The existing alcohol distilleries use sugar as their alcohol source. The investigating committee suggested establishment of distilleries for treating other surplus primary products.

United States Crude Oil Production Again Sets New Record

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (Sept.)	State Allowable (Barrels Daily in Sept.)	BARRELS DAILY FOR WEEK ENDED Sept. 13	Sept. 20
TEXAS:				
Texas Panhandle	.....	.....	85,150	86,100
North Texas	.....	.....	100,950	102,100
West Central Texas	.....	.....	30,600	31,000
West Texas	.....	.....	281,350	278,900
East Central Texas	.....	.....	84,900	84,650
East Texas Field	.....	.....	371,900	369,750
South Texas	.....	.....	218,950	216,950
Texas Gulf Coast	.....	.....	294,350	293,100
Total Texas	1,378,600	1,357,000§	1,468,150	1,462,450
CALIFORNIA:				
Long Beach	.....	.....	40,000	39,300
Midway-Sunset	.....	.....	48,500	48,200
Kettleman Hills	.....	.....	38,900	40,000
Wilmington	.....	.....	87,100	86,000
Others	.....	.....	439,300	435,100
Total California	634,700	610,000*	653,800	648,600
OKLAHOMA:				
Oklahoma City	.....	.....	76,350	88,550
Seminole Area	.....	.....	109,850	107,450
Others	.....	.....	227,150	226,250
Total Oklahoma	489,800	428,000	417,600	422,250
ILLINOIS:				
Salem	.....	.....	78,900	79,150
Louden	.....	.....	61,000	62,000
Centralia	.....	.....	9,250	9,100
Other New Pools	.....	.....	243,850	240,200
Old Pools	.....	.....	11,550	11,350
Total Illinois	392,500	.....	403,550	401,800

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (Sept.)	State Allowable (Barrels Daily in Sept.)	BARRELS DAILY FOR WEEK ENDED Sept. 13	Sept. 20
LOUISIANA				
North Louisiana	.....	.....	78,300	78,450
South Louisiana	.....	.....	255,750	254,100
Total Louisiana	324,000	328,646	334,050	332,550
KANSAS	239,800	248,800	244,050	258,800
NEW MEXICO	113,200	113,200	114,500	114,500
EASTERN STATES:				
Pennsylvania Grade	75,400	.....	72,500	74,500
Others, Eastern	24,400	.....	18,500	18,500
Total Eastern States	99,800	.....	91,000	93,000
MOUNTAIN STATES:				
Wyoming	85,000	.....	79,200	82,000
Montana	20,200	.....	20,350	20,500
Colorado	4,500	.....	4,200	4,500
Total Mountain States	109,700	.....	103,750	107,000
MICHIGAN	39,500	42,000†	47,550	51,000
INDIANA	21,400	.....	20,700	19,500
ARKANSAS	79,000	76,013	74,900	75,650
MISSISSIPPI	33,000	.....	51,600	52,850
NEBRASKA	5,000	.....	7,000	7,100
‡Total 8 Prorated States	3,298,600	3,203,659	3,354,600	3,365,800
Total United States	3,960,000	.....	4,032,200	4,047,050

* Recommendation of Conservation Committee of California Oil Producers.
† Estimate of actual production under prescribed regulations, which do not fix a definite state total allowable.
‡ Texas, California, Oklahoma, Louisiana, Kansas, New Mexico, Arkansas, Michigan.
§ Calculated daily average of actual production at beginning of September, allowing for usual under production of 3½ percent below net allowable, which was figured as of September 1, at 1,406,362 barrels daily. However, allowable normally increases as new wells are completed, and actual daily average production for month is expected to conform with Bureau of Mines estimate of demand. Under September order, most Texas fields were ordered shut down September 1, 6, 7, 13, 14, 20, 21, 27, 28, and 30. Panhandle was ordered shut down September 7, 14, 21, and 28.

U. S. FIELD OPERATIONS

Illinois Basin

New Field Opened in Gallatin County Illinois

Pool opened in Gallatin County; Benoist saturation found for first time in Franklin County; Fayette wildcat showing for small producer; New Haven field, White County, extended a half mile north; first dry hole in Johnsonville area, Wayne County.

Gallatin County: Delta Drilling Co.'s Miner Unit 1, NE NE NW 28-8s-9e, swabbed and flowed 180 bbls in 6 hours following 1500 gallons of acid in McClosky at 2849-55, 2870-78 and 2896-2906 ft, then dropped to 19 bbls an hour; preparing to reacidize; opens field two miles east of Ridgeway. Elevation 373 ft, Cypress 2521-33, Rosiclare 2790-2830; McClosky 2833, total depth 2993 ft. N. V. Duncan's Greer 1, SE SE SE 35-7s-9e, dry through McClosky, total depth 3030.

Franklin County: Oil Carriers' Kasper 1, SE SW NW 1-6s-2e, 1½ miles northwest of Benton, drilling plug to test Benoist saturation at 2009-19 ft. Test is 2 locations north Oil Carriers, Inc. John Wayman 1, showing for small McClosky producer, and three quarters mile north recently completed discovery well in Lower O'Hara lime.

Fayette County: Homer Luttrell's Ford 1, NE NE NW 31-5n-3e, just north Marion County line, 6 miles south St. James field, pumping 7 bbls of fluid hourly of which 50 percent oil, from Benoist 1883½-90 ft.

White County: Hiawatha Oil Co.'s Todd 1, SE SE SE 18-7s-11e, half mile north production New Haven field, completed in Cypress 2443-60 ft, pumped 206 bbls in 24 hours following 20-quart shot. Sam Yingling et al's Shepard 1, NE NE NE 5-4s-10e, a pool opener, pumped 52 bbls of oil in 24 hours from Cypress.

Wayne County: Pioneer Drilling Co.'s J. T. Schell 1, C N½ NW SW 25-1n-6e, mile east of production in Johnsonville field, abandoned 3234 ft. Porous McClosky at 3210-3224 ft on drill stem showed 150 ft of salt water in one hour. First dry hole in new Johnsonville area.

Clinton County: Texas Co.'s Gray 1, NW NW SE 35-3n-2w, casing collapsed; after casing perforations opposite Devonian show oil rose 700 ft along with 300 ft of fresh water. Devonian saturation at 2916-84 ft. Expected to open new field 4½ miles northeast of Carlyle.

Saline County: Thompson Drilling Co.'s Reich 2, NW SW NE 8-8s-7e, dry through Cypress, total depth 2600 ft. Non-commercial shows found in Palestine, Tar Springs and Cypress.

Indiana

Indiana reported a 230-barrel pumper in Caborn field, Posey County, while a new wildcat was located and another spudded in Warrick County.

Posey County: Central States Oil Co.'s Herman Seifert 1, NW NW 30-6s-12w, Carbon field, pumped 230 bbls first 24 hrs after shot in Mansfield around 1100 ft. Before shot it pumped 70 bbls per day. Another test in section 30 missed Manfield and will try Palestine sand; and in NE SW NE 25-6s-12w another test is going on down after finding nothing in either Mansfield or Palestine.

Gibson County: Longhorn Oil Corp.'s Edith Helm 2, NW SW SW 22-3s-14w, was unsuccessful in McClosky at 2929 ft, three locations northwest of No. 1, a producer. R. N. Sylvester's Earl Potts 1, C W½ SW SW 24-1n-10w, new McClosky producer 3 miles east of Hazleton, is making pumping test; on short swab tests it made 10 to 15 bbls hour from 1701-3 ft.

Warrick County: Kenn-Penn Oil Corp.'s Walter Metz 1, SE SW NW 10-6s-7w, wildcat, has spudded; B. S. Hollingsworth's Ezell 1, NE SW SE 36-6s-8w, is a location.

Kansas

Trego County wildcat Test Indicates New Pool

Wildcat indicates opening of new pool in Trego County; Stafford County test may prove link between Zenith and Stafford pools; several wells show promise of opening new production.

Trego County: Joe Aylward et al's Schaefer 1, SEc 19-12s-21w, 4½ mi northwest of Gugler pool, topped Arbuckle lime 3984 ft, drilled to 3997 ft, hole filled with 500 ft oil, casing set on top for test.

Stafford County: Dines Brothers et al's Blackburn 1, NW NE 18-24s-11w, 2½ mi west Zenith pool and same distance from Stafford pool, may indicate future linking of two prolific areas; top Viola lime 3838 ft, cuttings from 3838-40 ft showed good saturation and strong odor, casing set on top of horizon for test, is running 14 ft, high to dry hole ¾ mi southwest.

Reno County: Creekmore Drilling Co. et al's Hunter 2, CWL NW NW 18-24-10w, 3808 ft total depth in Viola lime, given bomb potential of 22,525 bbls, extends Zenith pool one location east.

Rice County: Lauck and Moncrief et al's Grizzell 1, CSL SE SW 7-19s-9w, south of Haferman pool, top Arbuckle lime 3290 ft, core 3272-79 ft recovered good saturation, drilling below 3303 ft.

Pratt County: Skelly's Ganaway 1, NE SE 30-28s-12w, southeast of Pratt, Arbuckle lime 4667-83 ft, set casing 4516 ft, to test Viola lime and Kansas City-Lansing.

Oklahoma

Well on Edge Guthrie Townsite Shows Production Possibilities

Townsite wildcat running high, holds attention; Stanolind may open new Cromwell sand pool; second well added to rich Okfuskee area; derricks spring up at new Apache field.

Logan County: Harry Miller et al's Katschor 1, C N½ NE NW 7-16n-2w, on the southwest edge of the Guthrie townsite, may open new townsite play similar to Oklahoma City, Wilcox sand 5680-5700 ft, no shows, running 193 ft high to Shell dry hole ⅜ mi southeast, drilling below 5725 ft, expect second Wilcox sand, producing horizon of nearby Guthrie pool, at 5740 ft.

Seminole County: Stanolind et al's Buck 1, NW SE NW 11-10-7e, west of Cromwell pool, apparently due to open new production, wildcat showed 70 ft oil-cut mud 1,500,000 gas on drill-stem test, casing set 4,335 ft in Cromwell sand, waiting on cement to test.

Okfuskee County: Deep Rock Oil Corp.'s Turner 1, SE NW 7-11n-8e, topped Cromwell sand 3704 ft, set 7-in casing 3707 ft, drilled to 3724 ft, swabbed and flowed 258 bbls oil in 24 hrs, deepening and cleaning out; is second well for new area; D. B. Malernee's Beard 2, SWc NE 7-11n-8e, on discovery lease, drilled to 3696 ft, set 7-in and was drilling plug, checking 5 ft, higher than operator's discovery well.

Apache Field: Texas Co.'s Smith 3, SW SE NW 2-5n-12w, Caddo County, set casing 3430 ft, waiting on cement; Mulkahay 1, SW NW SE 2 and Mulkahay 2, NE NW SE 2, rigging up Sinclair Prairie's Lewis 2, NE SE SW Sec. 2, and Lewis 3, SW NE SW Sec. 2, locations.

Pottawatomie County: Eagle Oil Co. et al's Weatherford 1, SEc SW 9-7n-5e, South Maud area, acidized Simpson dolomite 4112 ft, swabbing est. 41 bbls oil per hour on initial tests; Amerada's Peters 3, SWc NE 27-8-4e, North St. Louis pool, flowed 345 bbls oil in 24 hrs through 1-in choke, total depth 3915 ft, Hunton lime.

Rocky Mountain Area

Frannie Middle Fault Well Pumps 200 Barrels

First test of the middle fault block of the Frannie field is officially complete giving Wyoming a new oil strike. In Niobrara County, near Lance Creek, Wyoming, two wildcats are at critical depths. Several wells started in Wyoming's black oil fields under demand for heavy oils for fuels in defense industries.

Frannie: Stanolind Oil & Gas Co.'s Rosenberg 21-X, CNE SW NW 25-58n-98w, Park County, Wyoming, pumped 200 bbls clean oil through 90 perforations in 7-in, Tensleep saturation, 2634-46 ft. Hole bottoms near top of Madison 3034 ft with production string set 3030 ft so that discovery well Frannie Middle fault block can readily deepen for Madison test. Well potentially opens 1980 acres for drilling on Middle Fault block. North fault block is main development at Frannie with 16 wells, south fault block proved with one producer. Continental Oil Co.'s Merill 1, SW SW SW 34-9s-25e, Carbon County, Montana, side of Frannie, north extension area, bottoms 3556 ft Tensleep, pb to 3550 ft swabbing.

Niobrara County: Five miles south-

east Lance Creek, Western Petroleum Corporation's Mosier 1, SW SW 31-35n-65w, Dakotah High, is drilling below red marker bed logged 1920 ft, nearing main objective. First Leo sand. Old Woman Creek, John L. Berggren's Fee 1, SE NW 23-35n-63w, topped Bell sand 2749 ft, testing with bottom in sand at 2757 ft.

North Baxter: Gus Pongratz's Clark 1, NE NE NE 22-19n-10w, 1 mile west nearest gasser North Baxter Basin field, Sweetwater County, Wyoming, is drilling at 6500 ft in unproved Tensleep formation, objective.

Oregon Basin: Four new wells started Oregon Basin, Park County, Wyoming's largest black oil field: Husky Refining Co.'s Rosseau 4-A, NW SE SW 33-51n-100w, moving-in rotary; Yale Petroleum Corp.'s Frisby 2-B, NE NE SE 32-52n-100w, drilling 731 ft; Yale's Frisby 3-A, NE SW NE 32-52n-100w, and Mattie 2-A, SW SW NW 35-52n-100w, rotary locations.

Maverick Springs: In Maverick Springs, black oil field recently revived after 21 year shut-in Fremont County, Wyoming, Kirk Oil Co.'s Tribal 6, CNL NW SW 23-6n-2w, is spudding.

New Mexico

Lea County Wildcats Testing Indifferent Shows

Lea County wildcats furnish highlights of week's drilling activity. Test northeast of Vacuum yields little oil. Well between Maljamar and Vacuum shows small amount oil. Wildcat west of Monument cores lime without noteworthy result.

Re-treating: J. W. Brown's State 1, Sec. 4-16s-35e, 8 miles northeast of Vacuum pool and 6 miles west of Lovington pool, drilled to 5507 ft, plugged back to 5318 ft, with packer at 5241 ft, perforated at 5303-5318, treated with 1000 gallons acid, and recovered mostly water with a little oil and prepared to retreat.

Corbin Area: Culbertson & Irwin and Southern California Petroleum Corp.'s Wingfield 1, Sec. 4-19-33, wildcat 4½ miles south of Corbin area, was drilling lime at 4320 ft.

West of Monument: Marshall & Uscan's Cunningham 1, Sec. 22-19-35, wildcat 7 miles west of Monument field, drilled lime at 4890 ft, having encountered no shows in coring from 4560 to 4576 ft.

Small Amount Oil: Richmond Drilling Co.'s Shell-State 1, Sec. 22-17s-33e, half way between Vacuum and Maljamar pools, was testing after drilling at 4803-ft lime showing small amount of oil.

Nebraska

Falls City Twin Well Flows 450 Barrels Daily

Skelly twin well brought in for 450 bbls daily at Falls City; new wildcat staked in Richardson County; inside well showing water in lower Hunton lime.

Richardson County: Skelly's Davisson 5, SW NW NE 20-1n-16e, Falls City pool, perf Hunton lime, 2271-2282 ft, acidized 500 gals, swab est 450 bbls in 24 hrs, shut down for pump; Wallraff 5, C NW SE 20-1n-16e, rigging up; Roesch 1, C N½ NW 36-3n-16e, wildcat near Barada, building derrick. Harry Harper's Sibbernsen 6, SE NE NW 20-1n-16e, perf 2,281-85 ft, lower Hunton lime, showed unestimated amount of oil and considerable water, recementing.

West Texas

Todd Deep Test Completing After Ellenberger Show

Ordovician test between Abell and Sand Hills deep fields, Crane County, out of Permian. Upton County wildcat northwest of Big Lake field near 9000-ft level. Magnolia deep test in Winkler County approaches Ordovician. Dawson County test northeast of Cedar Lake field abandoned. Slaughter area deep test, Cochran County, may go to 7500 ft. Todd deep pool extension well, Crockett County, completed in regular pay, after yielding oil from Ellenberger. West edge well at Seminole, Gaines County, successfully plugged back out of water.

Crane County: Continental's Jones 1, Ordovician test midway between Abell and Sand Hills deep fields, which showed gas in Permian on drill-stem test at 4096-4230 ft, logged base of Permian at 5490, and drilled conglomerate at 5569 ft in proceeding.

Upton County: Plymouth Oil Co.'s Alford 1, eastern part of county, projected 9500-ft Ordovician test 10 miles northwest of Big Lake pool, drilled black shale and lime at 8995 ft.

Lynn County: Geo. P. Livermore's J. E. Rice 1, wildcat 12 miles north of Tahoka, scheduled to go to 6500 ft, drilled lime at 6283 ft. Trinity Drilling Co.'s Dan Auld 1, 14 miles west of Tahoka, is in lime at 4900 ft, rebuilding derrick that was pulled in when drill stem stuck in coming out to change bit.

Winkler County: Magnolia's J. B. Walton 20, between Hendrick and Keystone fields, was running 7-in casing after drilling to 8341 ft in black shale; it had favorable shows around 4900-, 5400-, 5800-, 7200-, and 7500-ft levels, with top Devonian at 7620; but casing is being set to prevent loss of hole, to assure reaching objective, the Ordovician, which is believed not far ahead.

Dawson County: Stanolind was preparing to abandon Scanlan Estate 2, Section 87-M-EL&RR survey, 3½ miles northeast of Cedar Lake field of Gaines County, at 5885 ft in lime, where it lost circulation. Ray Albaugh's Handley 1, Section 36, Block M, EL&RR survey, has cemented surface casing.

Cochran County: Atlantic's Boyd 21, Labor 9, League 56, Oldham lands, deep test in the Duggan-Slaughter area, has halted drilling at 7000 ft in lime and shale to await orders, which may call for 500 more ft of exploration.

Concho County: W. J. Rutledge's Will Lovelace 1, 3 miles south of Wellview, to be a 5000-ft cable-tool wildcat test, has been located 500 ft from south and west lines of Section 2, E. Anderson survey, A-1673.

Miscellaneous Wildcats: M. L. Richards' Drum 1, Section 307, Block 97, H&TC survey, eastern Borden County, is drilling below 2650 ft after having been shut down for repairs. Callihan & Wagner's E. M. Wahlenmaier 1, 20 miles southwest of Crosbytown, Crosby County, 3200-ft lime test, has run surface casing. Phillips' D. N. Montague 1, Section 6-B/4-AB&M survey, Briscoe County, will be drilled to 6500 ft when rig is moved in from Oklahoma.

Todd Deep Pool: Amerada's Todd 1-B, 1 mile northwest extension well for Todd deep pool, Crockett County, west of Ozona, late last week was taking potential test on completion in the field's regular Crinoidal (Ordovician) pay, producing through perforations at 6040-6055 and 6072-6082 ft. Besides extending the field, the well was the first of the area to yield oil from the Ellenberger, having indicated capacity to produce 100 barrels daily from that horizon, although it was subsequently plugged back. Amerada's Todd 1-C, west offset to 1-B, still is waiting on rotary, with 9⅝-in casing cemented at 452 ft. Amerada's Todd 1-C, 3½ miles west of production, and apparently too far out, is drilling at 6938 ft. At 6514 ft, with packer set at 6440, it showed sulphur water and about 2 percent oil on drill-stem test, having filled up with fluid and started flowing in 14 minutes.

Seminole's West Edge: Seminole field, Gaines County, gained another producing well on the west edge, although the limit of the productive area apparently was crowded, when Amerada after some difficulty succeeded in plugging back out of water, from 5265 to 5233 ft, in Coffey 6, which was completed for 278 bbls daily. This scientifically developed field, with uniform 40-acre spacing, appears to be fairly well drilled up, with approximately 10,0000 acres on production.

New Reagan Pool: Amerada's University 1-R-B, ¾ mile south and a little west of 1-R-A, which opened the Barnhart pool, southeastern Reagan County, deepest production in West Texas, is drilling below 1500 ft, with 10¾-in casing cemented at 927 ft. The discovery well is producing 44-gravity oil from Ellenberger at plugged back depth of 9082 ft. Amerada's University 1-R-C, projected shallow test 1 mile west of the discovery well, late last week had virtually reached its 2700-ft objective.

Jones County: M. J. Delaney Co.'s Swenson 1, test seeking to extend Avoca field to northeast, abandoned in black shale at 3306 ft, having had no shows. Jones & Stasney and Groover & Rose's Cannon 1, southeast corner of north 80 acres of Block 81, Dewitt County School Lands survey, Godwin subdivision, extended Stith pool production 950 ft northwest, having flowed 206 bbls 40-gravity oil daily through ⅜-in choke on 2-in tubing, casing pressure 410 pounds, tubing pressure 150 pounds, when Flippen lime (Cisco zone of upper Pennsylvanian), drilled to 3527 ft, was treated with 1000 gallons acid; well is third for field, being 950 ft northwest of Danciger's Kelso 2 oil well and 1925 ft northwest of Danciger's Kelso 1, discovery well.

Stephens County: T. S. Schroeder's Corbett 1 drilled grey lime, showing oil and gas, at 3960 ft. A. A. Daniel et al's Blach Estate 1, plugged back from 4252 to 3420 ft and treated with 5000 gallons acid through perforations at 3285-3300 ft, flowed 85 bbls oil and 25 bbls acid water in 20 hours through ½-in choke on 2-in tubing, and yielded 3,000,000 gas daily.

North Texas

Scotland Test Has Flow From Mississippian; Deepening

Well in Scotland pool, Archer County, drills toward Ellenberger after flowing oil from Mississippian on drill-stem test. Test in Antelope deep pool, Clay County, shows in Mississippian and runs electric log in Ellenberger. Well north of Bellevue, Clay County, drilling with oil in hole. Cooke County test swabs oil and salt water.

Archer County: Shell's Coleman 4-A, Block 74, ATNCL Survey, Lot 3, indicated Mississippian lime production for the Scotland pool, having flowed oil and oil-cut mud on drill-stem test at 5259-5328 ft, with top of Mississippian at 5258 ft, after which it logged lime with porosity and saturation at 5328-5400 ft and cored sand showing oil from 5400 to 5428 ft, in going ahead toward Ellenberger; at 5590 ft drilling proceeded in dry lime.

Clay County: Shell's Henderson 17-C, Antelope deep pool, entered Mississippian at 5930 ft, had lime with oil stain at 5970-5980, topped Ellenberger at 6053 ft, and after drilling Ellenberger dolomite to 6100 ft, ran electric log. Shell is clearing location for T. C. Maddox 1-A, T. M. Hughes Survey, 5700-ft test 8 miles northeast of Ringgold, in northeast part of county. Sinclair Prairie's Scheer 1, was drilling shale at 4720 ft, after having cored sandy lime and conglomerate wtih slight oil show at 4572-4575 ft. Gulf's Worsham 5, Swisher Survey, 7 miles north of Bellevue, was drilling green shale at 5759 ft, with 1200 ft oil in the hole, after having treated with acid and tested 10 gallons oil and 15 gallons acid water per hour at 5746 ft.

Cooke County: Bourland et al's Epps 1 is shut down for orders at 1668 ft, with 7-in at 1658, after making 8 bbls oil and 25 bbls salt water in 24 hours of swabbing.

Jack County: Taubert & McKee and Sinclair Prairie's Hoefle 1, formerly R. A. Conkling's test, northwestern part of county, was drilling shale at 3290 ft after having been shut down for several months at 3165 ft in lime, and was scheduled to go to 5500 ft. F. Kirk Johnson's Shawver 1, was shut down awaiting orders at 5523 ft after encountering slight show of gas in sand at 5073-5090 ft.

Montague County: Hults & Owens' J. A. Brite 1, Sec. 2820, TE&L Survey, gave promise of providing a 933-ft northwest extension for the 2-well Hults & Owens pool, 6 miles northwest of Bowie, having topped the Bend lime at 6020 ft, about even with that marker in the producing wells; slight showing also was reported at that level, and coring was started. Walter Gant's wildcat, Turner 1, has run casing for production test, after delay of several weeks in obtaining pipe, which was ordered after recovering 1100 ft of oil on drill-stem test in Bend at 6038 ft. Continental's Winder 1, mile east of Stoneburg, is drilling shale at 4720 ft. J. A. Chapman's Fowler 1, Massie Survey, 4 miles southeast of Ringgold, drilled shale at 5542 ft, after having cored sand with oil odor at 5403-5408 ft and streaks of oil saturation in 1 ft of core at 5408-5418 ft.

Young County: L. T. Burns' Jeffrey 1, TE&L Sec. 47, wildcat 3 miles southwest of Orth, was a failure in the Mississippian, which was encountered at 4881 ft and penetrated to 4985 ft before abandonment.

Fargo Pool: Although drilled into Strawn lime to 4670 ft, Amerada's Dodson 1-C, northwest outpost of Fargo pool, Wilbarger County, was plugged back to 4060 ft and shot with 24 quarts from 4030 to 4046 ft in lower Canyon for completion in that middle pay zone, with 5½-in casing set at 4024 ft. Across the field, 2 miles to south and east, same operator's Harrell 1, which failed to show in the Cisco, upper of the three pay zones, was drilling at 4159 ft. Drilled on a 40-acre spacing pattern, this one-year-old field now is a mile wide and two miles long and has 6 wells producing from the 3200-3300-ft Cisco pay, 19 from 3900-4000-ft Canyon sand, and 7 from the 4400-4600-ft Strawn lime.

East Texas

Henderson County Wildcat Flowing Oil and Salt Water

Cayuga field deep test below 7400 ft. Henderson County wildcat southwest of Athens flowing oil and salt water. Test in Fincastle area, eastern Henderson County, believed high on Woodbine. Development of Pittsburg field, Camp County, proceeds. Upshur County wildcat in Coffeyville area abandoned on finding salt water in Woodbine. Outpost at South Groesbeck distillate area shows

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up favorably. Smith County's Chapel Hill field further developed.

Cayuga Deep Test: Amerada's Berk 14, Glen Rose deep test at Cayuga, Freestone County, was drilling late last week at 7410 ft; Glen Rose 5940 ft.

Henderson County: British American's Young 1, Rice survey, 6 miles southwest of Athens, late last week continued flowing oil and salt water from perforations in Rodessa zone 7608-7624 ft, yielding 421,000 ft gas daily and 3½ bbls fluid per hour, of which 28 percent was 45-gravity oil, through tubing, ¼-in choke at bottom. Drilled to 8474 ft, the well previously swabbed salt water and small gas show when perforated 7733-7740 ft with packer at 7711. In Fincastle area, eastern part of county, Cook Drilling Co.'s Smith 1, Equis survey, logged Austin Chalk at 4280 to 4530-4550 ft, and at 4784 ft (4332 sub-sea) was tentatively thought to have encountered top of Woodbine. That preliminary identification indicated the well was 114 ft higher on the Woodbine than Consen's Miller 1, failure 3 miles southeast in Hays survey and 115 ft higher than Cosden's Hurt & Miller 1, Chaffin survey, dry hole 2 miles southeast. The test definitely logged upper markers higher than those two failures. Lone Star Gas Co.'s C. H. Allen 2 drilled shale and lime at 7745 ft.

Southwest Texas

Six Fields in Prospect and Several Extensions

Six new fields apparently being opened in Southwest Texas. Counties with new production include Jackson, Nueces, Starr, Jim Hogg and Wilson, two shallow spots being uncovered in the latter. Two wells completed and two testing opening new sands in as many fields.

Lower Gulf Coast: G. B. Buescher's Gillette 1, CDC sur, 2 mi nw Luby field, Nueces County, dst 7309-14 ft, ¼ & ⅜ ch, 1200 ft wtr chs in 12 min blt up 4 lbs wp, broke down second joint flowed wtr cushion and oil to top derrick, rec 4000 ft 39.8 gr oil; BPH 3150 lbs flowing, 3550 lbs shut in; set 7-in 7314 ft, dr plugs. Cut fault separating area from Luby; opens new pool. Sand indicated by other wells 25 ft thick. Other sands showing o&g 5475-97, 5850-90, 6952-68 ft, all Frio.

Moore & Ahern et al's Burditt 1, Young sur 3, 3½ mi nw LaWard, Jackson County, dst 5203-18 ft, in Marginulina, rec 1250 ft 25 gr o, 48 lbs ¼ & ⅜ ch, 15 min, BPH 1800 lbs flowing. Now drilling ahead to 6500-ft contract depth. Would open field 3 mi e Texana field and 2 mi sw LaWard field, both prod from same sand.

Magnolia's Mitchell 24, Lolita, Jackson County, dr to 6460 ft, pb perf 5820-32, flowed est 2,200,000 cu ft gas, spray 55-gr dist ⅜ ch, 1850 lbs tp, 2150 lbs cp, SIP 2275 lbs. First completion in 5800-ft sand which showed in other wells.

S. E. Wilson and Gulf Plains Corp.'s Rivers 1, 1½ mi w Agua Dulce field, Nueces County, ran elec log 7000-ft contract, will comp as oil well at 5728-75 ft.

S.E.W. Oil Corp.'s Land Bank 1, perf 5560-75 ft, flowed 152 bpd 42.4 gr o, no water, ⅛ ch 650 lbs tp, 1650 lbs cp, gor 740-1. Second producer in 5500-ft sand and extension Agua Dulce field, Nueces County.

Mirando District: H. L. Bedwell et al's (Bid-Rich Oil Co.) C. Palacios 1, blk 17, sec 287, Jim Hogg County, td 3008 ft, perf 2924-30 ft with 36 shots, flowed gas spray oil ⅛ ch, 985 lbs tp, 1050 lbs cp. Rosenberg sand in Yegua 2924-39 ft. Opens field ¾ mi e old Randado area. Also extends Rosenberg sand 25 miles.

Balcones District: Marts & Beaven's Cheney 1, northeast Elgin disc, Bastrop County, top Edwards 3340 ft, dr to 3385 ft, test sul water 3528-45 ft, abd, skid 1000 ft e to Cartwright 1 to test same zone.

Shell's C. L. Johnson 1, Reynolds sur, 5 mi ne Floresville, Wilson County, cored silty sand oil odor in streaks 450-490 ft, set 8½-in 457 ft, swabbed some oil and brksh wtr, may open new pool; apparently Queen City of Mount Selman.

H. J. Baker's Myers 1, Arrocha gr, 1 mi ne Floresville, Wilson County, pumping 3 to 5 bpd oil 635-640 ft fr Beklaw of Mount Selman; apparently new pool.

Wilcox Trend: Shell's McManus 1, Brushy Creek, western Lavaca County, dr to abt 11,600 ft, possibly below Wilcox, attempt blowout, killed, set cas, dr plugs to perf. Would open pool. Well dr tight and no information released.

Texas Gulf Coast

Deep Test Located Near Lochridge, Brazoria County

Brazoria County leads development with deep test staked in Lochridge area; Montgomery County Wilcox wells near projected depths; new gas or oil field assured at Needville, Fort Bend County.

Brazoria County: John G. Mayo has staked Barnes 1 on 200-acre Gulf and Shell farmout 1½ mi e Lochridge production. Located 447 ft from sl of tr in Andrew Robinson sur, 7000-ft test, first well drilled east side Oyster Creek.

Skelly Oil Co. ran electric log to 7400 ft in Vieman 1, Flag Pond prospect, now drilling ahead, no shows. Pure's Smith 1, Eagle Nest Lake area, drilling below 6000 ft. Humble's Colley 1, west of Alvin, drilling below 5208 ft, no shows. Sterling Oil & Refining Co.'s Shanks 1, east flank Stratton Ridge, drilling 7415 ft in hard lime, shale.

Montgomery County: Glenn H. McCarthy's Seyle 1, Magnolia prospect, drilling deeper after electric log run to 9505 ft in Wilcox. Survey showed distillate sand at 8450-56, other sands 8954-88, 9010-40, 9212-20. Sands were checked with sidewall samples showing possibilities. Pipe due to be set.

Superior Oil Co.'s McWhorter 1-B, exploratory test at Lake Creek, drilling below 12,164. Regular field sands already cored, well may be drilled to 13,00 ft. Atlantic has reached contract 10,500 ft in Foster 1-A, Fostoria area.

Polk County: Pan American's Texas Long Leaf 1-B, Goodrich area, drilling 9008 ft, no shows. Cockf 3965, Epon 4435, Wilcox 6906 ft.

Fort Bend County: Walter L. Goldston testing Coyle 1, Needville area, after setting pipe 5302 ft. Series of tests scheduled in sands 4980, 5015, 5165 ft in Marginulina and upper Frio. Thin sand section in core at 5165-80 ft showed oil, other sands showed gas. It is expected gas well will be completed although no new immediate drilling is planned. Out of several wells drilled on prospect, this well has found more showings than any other.

Louisiana Gulf Coast

Deep Test Projected In St. Martin Parish

Canal dredged to location for deep test in St. Martin Parish; Napoleonville wildcat near projected depth; Pine Prairie extension well testing.

St. Martin Parish: Amerada Petroleum Corp. is completing dredging canal to location of St. Martin Land Co. 1, SE 19-9s-8e, midway between Bayou Bouillon and Section 28 domes. Drilling is due to start immediately.

Assumption Parish: George H. Echols and J. Ray McDermott's Armelise Planting Co. 1, east flank of Napoleonville dome, has reached 8000 ft where electrical log was run. Survey was run for correlation purposes about 1100 ft, while well was drilling. No shows reported.

Evangeline Parish: Pan American Production Co.'s Guillory 1, extended Pine Prairie field north; cored oil sand 8308-58 ft, pipe set 8374 ft in sidetracked hole, testing.

Acadia Parish: Humble has abandoned Faulk 1, wildcat 9000 ft south of North Crowley production. Hole drilled to 9708 ft, no commercial shows.

North Louisiana

Locations for Seven Wildcat Test in Olla Trend Campaign

Locations staked for seven new wildcat tests in Olla Trend; Claiborne wildcat below anhydrite; series of tests in Vivian offshoot of Pine Island field planned.

Wildcat Locations: Recent discoveries at Catahoula Lake (Walters) and at Larto Lake, in LaSalle and Catahoula parishes, respectively, have spurred wildcatting in Olla trend, seven new locations being staked in Catahoula, Concordia, Grant and LaSalle parishes, H. L. Hunt and Carter Oil Co. making five.

Claiborne Parish: H. L. Hunt's Mitchiner 1, C SW SE 15-23n-7w, drills ahead below 6200 ft after logging massive anhydrite 3897-4088 ft and base of stringer at 4182 ft, show oil in upper Glen Rose; test planned for 8200 ft.

DeSoto Parish: J. E. Stack and associates' (Providence Drilling Co.) L. M. Cook 1, NW NE 32-13n-14w, wildcat near Grand Cane, continues swabbing and flowing 42-gravity oil from Austin chalk, total depth 2858 ft.

Arkansas

Smackover Lime Production In LaFayette County Test

New Smackover lime field indicated in LaFayette County; abandon wildcat in same county; second test at Macedonia shows oil.

LaFayette County: Tide Water Associated and Seaboard's Moore 1, C SW SE 29-17-24, LaFayette County,

flowing 9 bbls of fluid per hour, 10 percent salt water through ⅛-in choke, casing pressure 2750, tubing 1600 lbs after perforating with 70 shots 9320-30 ft, Smackover lime. Oil is 42 API gravity, greenish black color. First test 12 bbls hour and ¼-in choke, 30 percent salt water. Had planned plug back and perforate higher but now probably will not as water flow declining. Elevation 267 ft; top Smackover lime, 9268; elevation, 267 ft, total depth 9503 ft. Oil shows also logged 8042 and 7160 ft.

Ohio abandoned Garner 1, NW SW 13-16-24, LaFayette County, 7873 ft in Permian salt; top Smackover lime 6939 ft; tested 15 stands mud, oil odor 7097 ft.

Barnsdall Oil Co., secured 1760 acres of 3240-acre block, Township 15 south, Range 24 west, LaFayette County, from Eugene Goff for Smackover lime geophysical wildcat prospect test to start by November 1.

Columbia County: McAlester Fuel Co.'s Nipper 1, Sec. 16-18-21, west offset discovery well owned by same company, at Macedonia, drilled at 7868 ft, after drill-stem test, with packer set at 7790 ft, total depth 7825 ft, showed 30 ft straw-colored distillate, 210 ft mud, 60 lbs working pressure, ¼-in choke on top, ½-in choke on bottom. Three other tests drilling in same field and another location staked last week.

Mississippi

Tinsley Has Only One New Well; Extension Test Starts

Completions list drops sharply at Tinsley Dome field; outpost in that area staked; deep Alabama test below 11,000 ft.

Tinsley Dome: The completions list at Tinsley Dome field, Yazoo County, dropped sharply last week from the level of several months, only one new completion being recorded. One wildcat test, in Yalabousha County, abandoned.

Kirby Petroleum Co. and Woodley Petroleum Co. staked location 1¾ miles west of production at Tinsley for State 1, SE SE NE 16-10n-3w.

Alabama: Union Producing Co.'s Waite 1, C NW 27-8n-1w, Clarke County, drilling below 11,450 ft, reported showings in three horizons above that level logged by electrical device. Top of chalk 1660 ft. One new wildcat and one abandonment in Alabama.

California

Orange County Wildcat May Make Oil Producer

Outlook discouraging for three Kern County wildcats; Orange County test may make producer; new gas area discovered in Petaluma area of Sonoma County in Northern California.

Kern County: Richfield Oil Corp.'s Stone-Bragg 1, Sec. 33-13-12, Panoche Creek area, bottomed 5,724 ft, showed faint gas and oil showings on formation test of interval at 5273 ft but scheduled abandonment.

In West Mountain View area Richfield's No. 1 wildcat in 16-30-28, has been drilled and cored in shale with streaks of sand to 6332 ft without showings of importance and will be cored ahead.

Formation test on interval 9210-74 ft on North American Oil Consolidated's W.P. 1-28 deep test, Sec. 28-32-23, Midway-Sunset field failed to show any oil and is being cored ahead in hard shale below 9306 ft.

Los Angeles County: Continental Oil Co. recovered substantial quantity of fluid on formation test of interval 3270 ft to 3340 ft in Turnbull Community 1 wildcat, Sec. 13-2-11, Turnbull Canyon area, consisting of approximately 80 percent oil, 20 percent water. Operator considers prospects good for developing commercial production.

Sonoma County: Trico Oil & Gas Co. has opened a new gas field in the Petaluma area; Sec. 30-5-6, with completion of Miller 1 flowing 3,037,000 cubic feet daily through 40/64 bean with 400 pounds casing pressure. Bottom 1215 ft and top of producing sand placed at 1183 ft, with 30 ft of zone open through perforations.

Michigan

Bay County Deep Hole Plugged Back for Gasser

Bay County deep well looms as commercial gas proucer in Salina at 7800 ft, new record production depth for Michigan.

Deep Tests: Gulf's Bateson 1, Section 2-14n-4e, Bay County, plugged back from 10,477 to 7850 ft, and perforated with 93½-in shots 7759-78 ft, gauged 6,000,000 gas in 24 hrs between 2-in tubing and 7-in on 6-hr test; 3125 lbs casing pressure at start and dropped in 2 hrs and held at 1500. Built back up on shut in 12 hr to 3525 lbs; making ungauged amount distillate and some black sulphur water. Gas production is from an unclassified bed of the Salina, a formation dominated by salt.

Committee of operators announced that unless all subscriptions toward a cooperative 5200 ft St. Peter test in Grand Rapids field are forthcoming by month's end, plan will be dropped.

Reed City: Five completions boosted field total since May 31 to 34 with 2400 acres proven and no barriers to expansion. Potential on initial basis of wells now stands at 106,000 bbls daily. Weber Oil Co.'s Clark 2, C N½ SE NE 30-18n-10w, drilled into bottom water, plugged back 11 ft for estimated 150 to 200 bbl well. It was fourth well in field to develop water in completion. Other three were on west side and two were definitely off structure.

Wildcats: Pure's State 1, Section 35-21n-3w, Roscommon County, logged Dundee 4103 ft and reduced hole and had not showed at 4183 ft. Well missed Traverse lime pay, initial objective at 3400 ft. It was first follow up development to Hilliard's State 1, 1320 ft west, which completed for a July discovery and 5000-7000 bbl initial in Traverse at 3442 ft.

Seba Development Co.'s Zischke 1, Section 14-5n-3w, Clinton County, currently deepest drilling well in state, is drilling Clinton lime-shale section 5333 ft and scheduled for Trenton lime.

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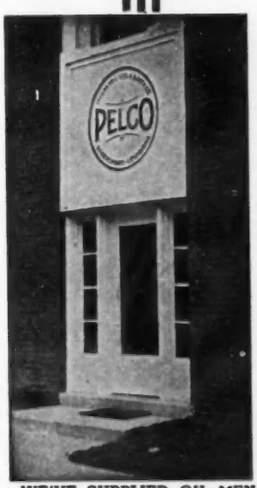

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UNITED STATES WELL COMPLETIONS

Company, Well and Location	Init. Prod. Bbls.	Depth
Arkansas		
Columbia County (Dorcheat)—		
Atlantic, Pinewoods A-2, 16-18-22	270	8880
La Fayette County (Wildcat)—		
Ohio, Garner 1, 13-16-24	*	7873
Miller County (Fouke)—		
Carter, Sturgis B-5, 1-17-27	45	3710
Nevada County (Troy)—		
Berry Asphalt Co., Hubbard 1, 5-14-20	22	1201
Union County (Smackover)—		
Curtis Kinard, Deupree 1, 5-16-16	90	2738
Alabama		
Fayette County (Wildcat)—		
J. W. Mills, Musgrove 1, 10-15s-12w	*	1495
California		
Fresno County (East Coalinga Eocene)—		
R. S. Lytle, No. 53-18F	1827	7882
Fresno County (Raisin City Area)—		
General, Burrell 1	*	9400
Kern County (Devils Den Area)—		
Miesse & McCabe, Jacquelyn 2	13	408
Kern County (Elk Hills)—		
Standard, No. 42-31S	1500	8030
Kern County (Fruitvale)—		
Western Gulf, Parker 5	80	4324
Kern County (Kern Front)—		
Republic Pet. Co., Strassburger 17	70	1900
Kern County (Midway-Sunset)—		
Richfield, Southwestern 9	162	1225
Kern County (Mount Poso)—		
Shell, Security 30	117	1970
Kern County (Round Mountain)—		
Signal Pet. Co., Larkin 1	*	2227
Kern County (Ten Section)—		
Shell, KCL A-33-29	720	8235
Kern County (West Greeley Area)—		
Superior, KCL 13	*	14123
Los Angeles County (Dominguez)—		
Shell, Reyes 119	1220	5360
Union, Austin 17	288	7185
Los Angeles County (Inglewood)—		
Hogan Pet. Co., Machado 2A	670	8175
Los Angeles County (Seal Beach)—		
Continental, Bixby 6	160	5836
Los Angeles County (Wilmington)—		
Comstock O. & G. Co., PM 15	110	3712
Pacific Western, Wilmington Comm. 1	165	5690
Union Pacific, UP 196	119	3653
Orange County (Huntington Beach)—		
Signal O. & G. Co., Signal-Bolsa 32	538	3420
Santa Barbara County (Elwood)—		
Barnsdall, Permit No. 88-12	666	4300
Santa Barbara County (Santa Maria Valley)—		
G. F. Getty, Vicente 7	50	4671
Lomi Oil Co., Fairfield 1	350	5280
Rock Island Oil Co., Kemp 1	200	4584
Union, Moretti 3-2	1152	6125
Sonoma County (Petaluma Area)—		
Trico O. & G. Co., Miller 1	¶3	1215
Illinois		
Bond County—		
A. J. Hausemann, Dunn A 1, sw nw ne 10-6n-2w	*	1207
Clay County—		
Pure, Evans B 1, c w½ nw se 15-2n-8e	113	3080
National Refg., Eastin 2, ne se nw 26-4n-7e	20	2334
Clinton County—		
Newton & Ward, Trame 3, nw ne nw 8-1n-3w	18	1005
A. W. Gerson, Kraft 1, e½ ne ne se 11-1n-1w	80	2932
Kraft 2, ne ne se 11-1n-1w	*	1395
Edwards County—		
Superior, Fewkes 3, s½ se se ne 7-2s-11e	*	3149
Effingham County—		
Carter, Workman 1, nw sw nw 7-8n-4e	*	1562
Fayette County—		
Carter, Finch 8, se nw se 4-7n-3e	10	1538
Crum 1, sw nw se 16-7n-3e	85	1572
Wood 2, nw ne ne 13-8n-3e	*	1539
St. Pierre 9, se ne sw 36-9n-3e	30	1632
Franklin County—		
J. J. Brodus, McLaughlin 1, n½ ne ne ne 23-6s-2e	*	2150
Adkins, Orient Coal "M" 4, s½ sw nw nw 31-6s-3e	38	2135
Gallatin County—		
Clay S. Wilson, Rogers 1, nw ne nw 16-8s-8e	*	505
Buell & Herndon, Egy. T&TCo. 3-A, nw sw sw 15-8s-10e	73	2417
Sinclair-Wyoming, Leach 3, se nw ne 16-8s-10e	81	2873
Hamilton County—		
Seaboard, Knapp 1, n½ sw sw 22-3s-5e	*	3493
Bert Fields, Garrison 1, s½ nw nw 27-3s-5e	*	3306
Dick Duncan, Hook 1, ne ne nw 34-3s-5e	150	3306
Jackson County—		
Barton & Shipman, Maharvy 1, ne ne se 20-9s-3w	*	1850
Jasper County—		
Pure, Pryor "A" 1, s½ ne se 7-5n-10e	950	2874
Cunningham 1, e½ ne ne 8-5n-10e	294	2810
Dickinson 3, c w½ sw nw 20-5n-10e	*	2840
Jefferson County—		
Gulf, Eubanks 7, nw sw sw 35-2s-1e	145	1977
Kingwood, Bank of Woodlawn 6, sw se nw 35-2s-1e	340	1999
Magnolia, Eubanks 1, nw se se 35-2s-1e	1008	1980
Eubanks 2, sw se se 35-2s-1e	703	1990
A. B. Potter, McMillan 1, se nw sw 35-2s-1e	250	1975
E. J. Ruwaldt, Winesburgh 1, nw sw se 35-2s-1e	680	1986
Ruwaldt & Bayer, Winesburgh 3, sw sw se 35-2s-1e	566	1960
W. C. McBride, Inc., Eubanks 1, ne nw ne 2-3s-1e	650	1970
Eubanks 2, nw nw ne 2-3s-1e	600	1956
Texas, Walker 1, ne ne nw 2-3s-1e	221	1950
Lawrence County—		
Midwest Dev. Co., Mullens 1, nw nw se 15-2n-12w	*	2175
G. Hayes, Sparks 3-A, nw ne se 36-2n-12w	45	1972
Joe Young, Price 2, sw sw sw sw 36-2n-12w	75	1992
Macoupin County—		
Dortomedge Oil Co., Hunsinger 1, sw nw ne 25-7n-7w	*	650
Marion County—		
Shell, Davidson 9-A, sw se ne 34-4n-1e	177	1481
Ohio, M. Young Hrs. 51, ne ne sw sw 20-2n-2e	Gas Input	1856
St. Clair County—		
C. A. Starr, Bruer 7, sw sw ne 28-1n-10w	20	550
Tarlton Oil Co., Tarlton 7, sw se se 28-1n-10w	200	714
J. A. Roth, Mense 2, se se ne 33-1n-10w	*	850
F. Loveridge, Gaskell 2, sw nw nw 34-1n-10w	100	718

*Failures; †Junked; ¶Million cu. ft. gas

[Continued on next page]

Summary of Drilling Operations in the United States, Week Ended September 20, 1941

	WELLS COMPLETED								*PERMITS FOR NEW WELLS				
		New Wells Drilled for Oil and Gas											
	Total for Week	Oil Wells	Gas Wells	Failures	†Miscellaneous	Initial Production	Total 1941	Total this Date 1940	This Week	Total this Month	Total 1941	Total this Date 1940	Year Total 1940
Alabama	1	.....	....	1	....	.....	2	5	....	.....	.....	.....	.....
Arkansas	5	4	....	1	....	427	122	139	2	9	132	107	153
California	25	21	1	3	....	10,177	870	830	27	92	860	773	1,042
Colorado	.....	.....	....	....	....	.....	14	7	....	.....	.....	.....	.....
Florida	.....	.....	....	....	....	.....	.....	1	....	.....	.....	.....	.....
Georgia	.....	.....	....	....	....	.....	1	....	....	.....	.....	.....	.....
Illinois	86	66	....	19	1	20,036	2,732	2,920	121	331	3,443	3,388	4,532
Indiana	4	2	1	1	....	278	390	344	8	26	146‡	.....	.....
Iowa	.....	.....	....	....	....	.....	5	....	....	.....	9	.....	1
Kansas	39	22	....	17	....	27,953	1,625	1,468	41	150	1,703	1,488	2,048
Kentucky	14	3	....	11	....	48	228	250	5	26	98‡	.....	.....
Louisiana	49	36	2	11	....	6,109	1,086	1,229	42	106	1,276	1,227	1,658
Michigan	24	10	3	11	....	6,235	593	898	12	41	630	828	1,093
Mississippi	2	1	....	1	....	240	139	142	....	.....	.....	.....	.....
*Missouri	.....	.....	....	....	....	.....	36	15	....	.....	.....	9	26
Montana	.....	.....	....	....	....	.....	144	132	....	.....	.....	.....	.....
*Nebraska	1	1	....	....	....	137	66	12	1	8	79	15	69
New Mexico	10	7	....	3	....	716	268	504	....	12	295	450	559
New York	30	18	....	....	12	146	693	754	....	.....	.....	.....	.....
Ohio	32	8	17	7	....	336½	1,237	718	....	.....	.....	.....	.....
Oklahoma	56	37	4	15	....	9,854	1,596	1,563	57	166	1,652	1,337	1,888
Pennsylvania	69	37	15	4	13	46	2,644	2,730	....	.....	.....	.....	.....
South Dakota	.....	.....	....	....	....	.....	.....	1	....	.....	.....	.....	.....
Tennessee	.....	.....	....	....	....	.....	7	8	....	.....	.....	.....	.....
Texas	258	205	6	45	2	99,462	7,510	7,449	372	670	8,818	8,279	11,170
Utah	.....	.....	....	....	....	.....	2	2	....	.....	.....	.....	.....
West Virginia	23	5	14	4	....	47	505	413	....	.....	.....	586	782
Wyoming	3	3	....	....	....	1,832	100	114	....	.....	163	1	1
Total this week	731	486	63	154	28	174,079	22,625	22,648	688	1,637	19,304	18,488	25,021
Total last week	721	448	79	156	38	149,029	21,894	22,077	477	949	18,616	17,999	25,021
Total this year	22,625	14,158	1,733	4,966	1,768	6,307,363	.....	.....	....	.....	.....	.....	.....

* This tabulation includes those states where weekly data are available; figures for Missouri date from August 10, 1940; Nebraska from August 3, 1940.
† Includes old wells deepened, water-intake, gas input, and salt water disposal wells.
‡ No data available before June 14, 1941.

United States Well Completions—*Continued*

Company, Well and Location	Init. Prod. Bbls.	Depth

Wabash County—
Magnolia, Alka 1, ne se sw 34-1s-13w 35 2657
First Nat'l Pet., Guard 1, nw nw nw se 21-1s-12w 112 1995
Hays Drlg. Co., Cotner 3, Lot 181 21-1s-12w 35 1487
W. F. Lacy, Friend 1, Sub Lot 1, 21-1s-12w 20 1490
Olds & McNeil, Riverside Park 2, n½ se ne sw 21-1s-12w 70 1487
Riverside Park 3, n½ se ne sw 21-1s-12w 100 1994
Joe Young, Stilwell 11, nw sw ne se 1-1n-12w ..... * 1690
Snowden & McSweeney, Armstrong 2, sw sw se 9-1n-12w 70 2292
Adams Corner O&G, Adams 1, ne ne nw 16-1n-12w 360 2292
Washington County—
Powell & Rish, Holle 4, nw ne nw 15-1s-1w 30 1532
Wayne County—
Watkins & Wrinert, Bright 1-B, n½ ne ne 2-2s-7e 440 3334
Texas, Davis 2, e½ nw nw 10-2s-7e (pb 3283) 34 3288
New Penn Dev. Co., Wagner 2, c e½ nw se 30-2s-9e 150 3365
Sam Yingling, Scudmore 1, e½ sw ne 28-1n-6e 2326 3150
Gulf, Rosa "B" 1, n½ nw sw 34-1n-6e 1800 3147
Wiser Oil Co., Watson 4, s½ se nw 34-1n-6e 1404 3145
Watson 5, n½ ne ne 34-1n-6e 600 3104
Olson Drlg., Porter 1, e½ sw se 36-1n-6e 900 3286
White County—
Arrow Drlg. Co., Hon "E" 1, se se sw ne 32-3s-13w ..... * 2939
Aud 1, se sw se 35-6s-8e ..... * 3167
W. C. McBride, Inc., Crawford 1, se se ne 32-3s-14w 247 2858
Texas, Poorman 10, e½ sw sw 19-3s-8e 192 3244
Hudson-Hess, Poorman 1, se sw ne 30-3s-8e 414 3227
Mabee Drlg. Co., Hon "B" 1, ne se sw 9-4s-14w 85 2236
Compton et al, Grey 3, nw sw sw 21-4s-14w 40 3024
Superior, Fitton 24, ne sw nw 23-4s-14w 90 2875
Fitton "A" 19, se ne ne 32-4s-14w 95 2930
Given et al 12, se sw nw 34-4s-14w 461 2840
Sun Oil, Jacobs "A" 13, nw se ne 28-4s-14w 35 2858
Greathouse 1, ne ne se 32-4s-14w 28 2600
Magnolia, Roser 1, nw ne ne 25-5s-10e 112 3122
Tidewater, Shain 5, se ne se 23-6s-8e 134 2526
Skelly, Karch 1, se se se 13-6s-10e * 2893
Cherry & Kidd, Karch 4, nw se nw 24-6s-10e (pb 2020) 50 2990
Carter, Fuller 4, ne se nw 11-7s-8e.. 566 2195
Hamilton 2, w½ sw se ne 11-7s-8e 221 2906
Hamilton 4, nw sw ne 11-7s-8e.. 425 2196
McGill 1, ne nw nw 14-7s-8e 396 2911
Kingwood-Sinclair, McKenzie 3, nw nw sw 12-7s-8e 70 2751
Tidewater, Baker 4, nw ne nw 14-7s-8e 70 2911
Baker 6, ne ne nw 14-7s-8e 60 2175
Tristate Crude Dev., Hamilton 1, c e½ e½ sw 14-7s-8e ..... * 2923

OLD WELLS DEEPENED

Champaign County—
J. H. Wall, Baird 1, nw nw nw 9-18n-10e (otd 1180) ..... * 1200
Clark County—
Bancroft, Aetna Life Ins. 1, nw sw se 7-11n-14w (otd 863) 15 990
Fayette County—
Texas, McGee 6, ne se nw 6-6n-3e (otd 1564) 100 1578
McGee 7, e½ ne sw nw 6-6n-3e (otd 1562) 176 1578
Wright 1, se nw sw 31-6n-3e (otd 1603) 65 1618
Hamilton County—
Texas, Edwards 1, nw ne ne 3-6s-6e (otd 2946) 100 3051
Hood 1, ne nw ne 3-6s-6e (otd 2955) 290 3050
Marion County—
Texas, Friedrich "A" 27, nw sw sw 29-2n-2e (otd 3400) 35 4670
Shanafelt 14, nw ne ne 29-2n-2e (otd 3424) 120 4619
Maxwell "A" 5, ne se ne 31-2n-2e (otd 3440) 80 4570
McCollum 22, sw nw ne 32-2n-2e (otd 3385) 120 4622
Magnolia, Harley 5, se se sw ne 31-2n-2e (otd 3375) 72 4595
Wayne County—
Texas, Loontz 1, nw ne sw 33-2s-7e (otd 3327) 39 3350

Indiana

Daviess County—
R. D. Brown, Inc., Chapman 1, c sw sw 15 2n-6w 1497 683
Gibson County—
Hall Edwards, Rec., A. Maier 38, nw se nw 14-3s-14w 270 2540
Posey County—
Paul Rossi, Dehpsemeyer et al 1, nw nw ne 32-6s-12w ..... * 2451
Vanderburg County—
T. W. Drake, Nurrenbern 2, s½ nw nw 5-7s-11w 8 1148

Kansas

Barton County—
Hinkle Oil Co., Burmeister 2, 27-16s-11w ..... * 3399
B. B. & M., Krier 4, ne ne se 30-16s-11w (pb 2900) 625 3361
Shell, Hoffman "A" 11, near c s½ s½ sw 7-16s-13w 3000 3356
R. H. Shields, Kimpler 1, c w½ nw ne 31-18s-11w ..... * 3526
Stanolind, Panning 24, se ne sw 10-20s-11w 3000 3288
Helmerich & Payne, Schmidt 1, c e½ ne se 20-20s-15w ..... * 3875
Brown County—
McAlpine et al, Tyler 1, ne sw sw 4-3s-15e ..... * 1550
Butler County—
Eldorado Ref. Co., Richards 10, c w½ ne ne 24-26s-4e ..... * 2715
Cowley County—
Trees Oil Co. et al, Bruce 1, nw nw ne 9-30s-4e 690 3315
Ryan Consol., Kennedy 3, nw ne sw 12-30s-5e 1869 2846
Ellis County—
Dickey Oil, Carmichael 7, c e½ ne nw 17-11s-17w 3000 3373
Kansas Dev., Feldkamp 1, c s½ ne sw 11-11s-18w ..... * 3462
Ellsworth County—
Derby & Crow, La Font 1, c w½ nw ne 9-16s-10w ..... * 3260
Phillips, Kozisek 1, nw nw se 9-16s-10w ..... * 3314
Greenwood County—
Jackman et al, Jones Sisters 1, ne nw ne 6-22s-12e (pb 1905) 15 1936
O.K.O., Shedel 21, ne sw se 15-23s-13e 30 1781
Derby et al, Davis 1, se sw ne 8-28s-11e 35 1228
Jefferson County—
Longwell et al, Bartlett 2, c sw se 33-9s-20e ..... * 1503
Sherrod et al, Halner 1, c nw se 4-10s-20e ..... * 1682
Anderson, Woodhead Est. 1, c ne sw 6-10s-20e ..... * 1543
Lauring et al, Petrie 1, ne se se 19-10s-20e ..... * 1683
Marion County—
Ring-Mac, Schick 7, nw ne nw 33-17s-4e 553 2419
McPherson County—
Nadel et al, Unruh 1, c s½ se 26-19s-2w 50 2967
Ness County—
Continental, Thompson 1, nw nw ne 24-18s-24w ..... * 4437
Norton County—
Helmerich & Payne et al, Wyatt 1, c e½ ne ne 20-1s-23w ..... * 3615
Reno County—
Republic Nat., Snowberger 1, ne sw ne 21-23s-10w 3000 3783
Simpson Oil Co., Snowberger 2, sw ne ne 21-23s-10w 3000 3786
Hall-Jordan, Stuckey 1, c n½ nw sw 31-25s-5w ..... * 4095
Rice County—
Aylward Prod., Siehler 1, ne ne se 21-18s-9w 483 3253
Gulf, Robbins 1, se ne sw 8-19s-9w 480 3268
Cities Service, Eatinger 1, sw se nw 21-19s-10w (pb 3238) 733 3325
Luther Mackall et al, Mitchell 1, c s½ sw se 4-20s-9w 537 3243
Stormfeldt & Hyde et al, Graham 2, c e½ nw se 16-20s-10w 2787 3145
Vickers, Bayer "A" 3, c s½ nw sw 20-20s-10w 2618 3293
Rooks County—
Tom Allan et al, Mitchell 1, c n½ ne se 10-10s-19w ..... * 3720
Russell County—
Hartman & Blair, Boxberger 6, ne nw ne 26-14s-14w 633 3167
Skelly, Boxberger "C" 1, c w½ sw se 12-14s-15w 654 3071
Helmerich & Payne, Krug 1, c e½ ne sw 35-15s-13w ..... * 3350
Sumner County—
Stelbar, Ludwig 2, c w½ se ne 29-31s-1w 160 3702

OLD WELL DEEPENED

Stafford County—
Stanolind, Fuller 4, c w½ se sw 11-24s-11w (otd 3774) 3000 3814

Kentucky

Butler County—
B. Phillips, Hames 8, 7-H-33 .... * 530
Daviess County—
Shaffer & Smith, Baird 2, 16-N-29. * 1815
H. C. Farmer, Yeiser 1, 15-N-30... * 1310
Roy Mace et al, Sparks 8, 18-N-30.. * 1011
Cane Run Pet., Jackson 17, 3-N-31 * 936
C. E. Daugherty, Heulette 7, 16-N-31 ..... 10 711
Jesse Ashby, Jogoe 1, 13-P-27 (pb 1683) 8 1887
Hancock County—
Leeper Oil Co., Jett 10, 3-O-ee .... * 760
Henderson County—
Minton & Dial, Deacon 1, 17-Q-20.. * 2756
Ohio County—
W. Wilkins et al, Mosely 1, 25-N-31 ..... 30 838
A. Likens et al, Lewis 6, 10-N-32.. * 472
E. Burgess et al, Whitely 8, 3-N-33 * 634
J. C. Miller, Whittler 7, 8-N-34 ... * 292
Union County—
Sun & Kenty Gas, Reyburn 1, 20-O-18 ..... * 2632

OLD WELLS DEEPENED

Daviess County—
R. Mohlberger, Westerfield 3, 17-N-29 (otd 1497) 30 1521
McLean County—
Ohio, McNanama 8, 4-M-28 (otd 1171) 100 1671

North Louisiana

Bossier Parish (Bellevue)—
Premier Inv. Co., Wyche 50, 14-19n-11w 25 397
Wyche 54, 14-19n-11w 10 396
Wyche 57, 14-19n-11w 10 405
Bossier Parish (Sligo)—
Triangle Drlg. Co., Kerr A-2, 24-17n-12w 91 3138
Thigpen-Herold B-4, 19-17n-11w.. 95 3136
Catahoula Parish (Wildcat)—
Carter & Phillips, Tensas-Delta B-1, 14-5n-5e 154 6000
Caddo Parish (Pine Island)—
Davis & Hart, Muslow B-7, 2-21n-15w 28 1526
Muslow A-4, 5-20n-15w 35 1503
Magnolia Pet. Co., Doan-Thigpen 38, 14-21n-15w 324 1450
J. E. Marshall, Spell A-1, 29-21n 15w 35 1554
Stanolind, Dillion Heirs 139, 14-21n-15w 90 1620
Texas Co., J. H. Herndon 8, 22-21n-15w 50 1588
Claiborne Parish (Sugar Creek)—
Carter, Caskey 1, 31-20n-5w 625 5816
Gholson & Hodge, Byrd 1, 18-19n-5w 725 5776
Sugar Creek Synd., Robinson 4, 33-20n-5w ..... * 5993
La Salle Parish (Little Creek)—
Placid Oil Co., Cockerham 1, 32-9n-2e 180 2690
La Salle Parish (Nebo-Jena)—
H. L. Hunt, Goodpine C-5, 27-8n-3e * 5187
Berkshire Oil Co., Whatley 1, 19-8n-3e ..... * 4810
H. L. Hunt, Goodpine F-55, 17-7n-3e 105 4065
Goodpine F-56, 17-7n-3e 160 3785
Goodpine F-61, 17-7n-3e ..... * 3838
Harry Shulman, Shapiro 1, 38-7n-3e 120 4308
La Salle Parish (Olla)—
H. L. Hunt, Goodpine, F-34, 18-10n-3e 90 2409
P'acid Oil Co., La. Central Lbr. Co. 94, 36-10n-2e 170 2363
La. Central Lbr. Co. 104, 2-9n-2e 120 2452
La. Central Lbr. Co. 110, 10-9n-2e 110 2451
La Salle Parish (Wildcat)—
H. L. Hunt, Goodpine F-19, 36-9n-4e ..... * 5460
Natchitoches Parish (Ajax)—
J. E. Watts, Tanner 2, 18-10n-10w 5 3223
Union Parish (Monroe)—
Nemours Corp., Edwards 4, 11-21n-3e 71 2182
Webster Parish (Cotton Valley)—
Hunt Oil Co., Griggsby A-1, 17-21n-9w 140 8776

South Louisiana

Acadia Parish (North Crowley)—
Humble, Marvin Kahn 1..... 129 8812
Acadia Parish (South Crowley)—
Humble, Faulk 1..... * 9708
Acadia Parish (Ritchie)—
Nicklos-Vincent & Welsh, McManus 3-A ..... * 3524
Evangeline Parish (Ville Platte)—
Continental, Martha Haas 8..... 234 12527
Evangeline Parish (Pine Prairie)—
Nicklos Drlg. Co., Jesse Reed 1... * 9548
Iberia Parish (Wildcat)—
Plymouth, Big Pigeon 1..... * 11836
Iberia Parish (Little Bayou)—
Grubb & Hawkins, C. Hebert 3.... 257 6133
Iberville Parish (St. Gabriel)—
Shell, Gueymard 4..... 408 8650

[*Continued on next page*]

United States Well Completions—*Continued*

SOUTH LOUISIANA—Continued

Company, Well and Location	Init. Prod. Bbls.	Depth
LaFourche Parish (Chacahoula)—		
Sun, Cypress 4	182	8303
Plaquemines Parish (Grand Bay)—		
Gulf, Grand Prairie Levee A-15	357	10004
Plaquemines Parish (West Bay)—		
Gulf, Timolat 5-B	360	7399
St. Charles Parish (Paradis)—		
Texas Co., Mallory 1	260	10490
St. Martin Parish (Wildcat)—		
Amerada & Phillips, Arm-State 1	264	9995
St. Martin Parish (Anse la Butte)—		
Crosby Drlg., Republic 5	229	4792
Stanolind, Rycade 3	266	6525
St. Martin Parish (West Lake Verrette)—		
Shell, Breaux 6-A	*	3507
St. Mary Parish (Wildcat)—		
Texas Co., State-Rabbit Island 2	*	8520
St. Mary Parish (Charenton)—		
Fifteen Oil Co., Parre 4	135	6015
Vermilion Parish (South Gueydan)—		
Pure, Alliance Trust 9	256	9890

Michigan

Company, Well and Location	Init. Prod. Bbls.	Depth
Arenac County—		
Ervin Major, Moore 1, nw sw se 22-19n-3e	35	2870
W. Fisher, Brooks 1, c e½ ne se 9-19n-4e	*	3030
Bay County—		
Century & Major, McDonald 1, sw se sw 2-18n-3e	*	2995
Gulf, Whyte 1, se ne se 33-15n-4e	60	2944
Chapman Oil Co., Ruegsegger 2, nw nw ne 3-14n-4e	45	2909
Clare County—		
Union Dr. Co., Newland 1, se se nw 19-20n-4w	*	4095
Sun, State AS, c s½ sw se 36-20n-6w	25	3785
Isabella County—		
L. & S. Co.'s Nelson 1, nw nw ne 19-14n-5w	¶1¼	1315
Secord 1, se sw ne 29-14n-5w	*	1322
Kent County—		
Homer Fulton, Dawson 1, ne sw ne 21-5n-10w	*	1971
Livingstone County—		
Voorhees Co., Reserve 1, nw nw ne 24-3n-6e	*	1800
Fisher-McCall, Inc., Herbst 1, se sw nw 24-2n-5e	*	1200
Missaukee County—		
Taggart Bros. Co., Bodery 26, c ne 17-21n-7w	*	1495
Bank 24, c ne 20-21n-7w	¶ ½	1490
Geeseman 25, c sw 21n-7w	¶3¼	1445
Jager 27, c nw 21-21n-7w	*	1460
Oceana County—		
American Dr. Co., Davis 1, ne nw sw 8-16n-16w	*	3500
Osceola County—		
Weber Oil Co., Stedman 1, c n½ sw nw 29-18n-10w	1100	3625
Clark 2, c n½ se ne 30-18n-10w	150	3683
Wilson 2, nw ne se 30-18n-10w	2600	3571
C. W. Teater, Baderschneider 2, c s½ se nw 30-18n-10w	1700	3590
Gulf, Lomp 2, c n½ nw nw 32-18n-10w	1480	3615
Otsego County—		
Burks White, Koski 1, ne nw ne 36-31n-3w	*	1590
Van Buren County—		
H. L. Wheeler, Pullin 1, se nw nw 1-1s-14w	40	1287

Mississippi

Company, Well and Location	Init. Prod. Bbls.	Depth
Yalabousha County (Wildcat)—		
J. E. Green, Geldman 1, 23-25n-6e	*	2400
Yazoo County (Tinsley Dome)—		
Magnolia, Payne 5, 35-10n-3w	240	4876

Nebraska

Company, Well and Location	Init. Prod. Bbls.	Depth
Richardson County—		
Black-Gold, Evans 1, c ne ne 31-3n-16e	137	2525
OLD WELL DEEPENED		
Richardson County—		
Ohio, Bucholtz 1, c nw sw 17-1n-16e (otd 2232)	698	2301

New Mexico

Company, Well and Location	Init. Prod. Bbls.	Depth
Eddy County (Wildcat)—		
Jones, Yates et al, Pickrell 1, 5-19s-26e	*	1015
Eddy County—		
E. L. Fulton, State 1, 36-17s-27e	43	528
Morton & Elder, Root 1, 6-17s-30e	*	3634
Republic Prod. Co., Yates-State 4	16	2117
Lea County (Maljamar)—		
Brewer Drlg. Co., Mitchell 1-B, 18-17s-32e	132	3677
Carper Drlg. Co., Simon 8-N	150	4001
B. Cockburn, Pearsall 11-A, 33-17s-32e	*	4643
Maljamar O&G Co., Mitchell 10-B	240	3840
Lea County (Vacuum)—		
N. G. Penrose, State Warn 1	80	4575
Lea County (Skelly)—		
Uscan Oil Co., Blinebry 4-A	55	3615

New York

Company, Well and Location	Init. Prod. Bbls.	Depth
Allegany County—		
Bradley Prod. Corp., Bascome farm, Alma	15	1386
Reynolds & Reeland, Cowles farm, Bolivar	6	1056
G. O. Williams, Williams farm, Bolivar	9	1068
South Bolivar Oil Co., McKelvey farm, Bolivar	7	1385
R. B. Moore No. 6, Beers farm, Bolivar	4	1537
Gilligan & Dermitt, Gilligan farm, Bolivar	10	1276
Star Oil Co., Neff farm, Bolivar	6	1358
McEnroe & Randall, Reid farm, Alma	12	1538
Bradley Prod. Corp., Duke farm, Alma	6	1539
Andrews Bros. Oil Co., Minnum farm, Alma	8	1570
L. E. Norton, Coates farm, Scio	7	1325
Wilbart Oil Co., McDermott farm, Bolivar	8	1041
McEbenwood Oil Co., Dean farm, Andover	10	1388
Pioneer Oil Co., Wood farm, Willing	5	1363
Carl Oil Co., No. 5, Harris farm, Ward	6	860
Forest Oil Co., Lester farm, Wirt	10	1372
Willetts & Paul Corp., Rock City farm, Genesee	8	1620
Sloan & Zook Ramsdell farm, Bolivar	9	1413
Water Intake Wells—		
Walter J. McEnroe, Hoover farm, Bolivar	..	1545
V. V. V. Franchot, Murphy farm, Bolivar	..	1470
Brothers Oil Co., Crandall farm, Bolivar	..	1365
Prattsburg Oil Co., Robinson farm, Scio	..	1286
Albert Oil Co., Vance farm, Alma	..	1458
Bradley Prod. Corp., Duke farm, Alma	..	1530
Albert Oil Co., Coats farm, Alma	..	1270
J. P. Herrick et al, Howe farm, Bolivar	..	1441
Trio Oil Co., Weterby farm, Bolivar	..	1434
L. H. Thornton et al, Smith farm, Willing	..	1330
H. W. Patterson et al, Browning farm, Scio	..	875
Bliven Hill Oil Co., Norton-McEwen farm, Scio	..	956

Ohio

Company, Well and Location	Init. Prod. Bbls.	Depth
Ashland County—		
Perry Oil, Devault 11	3	730
Ohio Fuel, Allen 1	¶0.53	2811
Athens County—		
A. D. Townsend, Fee 2	¶1.2	1683
D. T. Orndoff, Sugar Creek Coal Co. 2	¶0.04	1410
C. W. Nuzum, Stalder 1	¶0.05	1650
Jefferson County—		
Chas. H. Jones, Welling 2	2	1315
Knox County—		
Upham Gas Co., Workman 2	*	2780
Lawrence County—		
Ohio Fuel, Hamlin 1	¶0.03	2634
Licking County—		
Moore Bros., Ashcraft 1	*	2640
Allen Wiley et al, Gleckler 2	¶1.25	2640
National Drlg. Co., Swick 1	¶0.4	2741
Medina County—		
Ohio Fuel, McConnell 1	¶0.04	3570
Lucal 1	¶0.92	3290
Wyman 1	¶0.29	2168
Meigs County—		
Ohio Fuel, Gilbert Coen 2	¶2.45	1705
Ash et al, Titus 1	¶1.5	792
Monroe County—		
F. S. Paulus et al, Paulus 1	¶¼	2040
T. E. Drum, Hedleson 1	*	1582
Morgan County—		
Williams Bros., Geddes 1	¶0.31	920
Muskingum County—		
Industrial Gas Corp., Boyse Heirs 2	*	4270
Noble County—		
Bingham Co., Wheeler Heirs	¼	200
Willard Lashley et al, Conservancey Dist. Muskingum	¶0.05	1340
Perry County—		
Preston, Cookson 5	225	3310
Kachelmacher Estate, Hemlock Coal 21	100	3630
C. Z. Ruth, Northwest Coal Co.	*	1096
Putnam County—		
H. P. Hubbell, Baker 3	4	1368
Tuscarawas County—		
Brendel Prod. Co., Reifenschneider	¶0.2	1154
Washington County—		
Leith Oil Co., Riggs 2	2	1567
A. H. John et al, Liebrand 5	¶0.05	1583
C. D. Uhl, Huffman 12	*	1655
Wayne County—		
Ohio Fuel, Heckman 2	¶0.1	3105
OLD WELL DRILLED DEEPER		
Monroe County—		
Wood Rock & Gas Co., McBride 1	*	1775

Oklahoma

Company, Well and Location	Init. Prod. Bbls.	Depth
Caddo County—		
Geo. Pace, McClaren 2, se nw ne se 6-5n-9w	12	3419
Ohio, Wagner Acct. No. 1-9, sw ne sw 12-5n-9w	746	4020
Phillips, Fetcher 3, near c ne ne nw 34-6n-10w (pb 3392)	*	3526
Texas, Z. N. Smith 2, c se nw 2-5n-12w	1467	3430
Carter County—		
J. N. Runnely, Polman 1, ne sw ne nw 30-2s-3w	*	277
Tide Water, Ward 6, sw ne se ne 19-4s-2w	130	2234
Gibson & Jennings, Griffin 11, near c ne ne se 20-4s-2w	140	2298
Harrell "A" 11, sw se sw nw 20-4s-2w	723	2221
Carter, Voorhees 12, near c n½ nw sw 21-4s-2w	90	2379
W. T. Hale, Est., Voorhees 10, near c sw sw nw 21-4s-2w	50	2380
Cleveland County—		
L. Mays et al, McCommons 1, nw ne ne 15-10n-1e (pb 5797)	*	6380
Creek County—		
Lewis Prod., Foushee 3, ne ne nw 5-14n-7e	*	2869
Shell, Miller 1, ne ne ne 6-14n-7e	*	2932
Glen Cole et al, Harjo 1, nw nw se 25-14n-10e	*	3292
B. J. Collins et al, Eubanks 1-A, ne se se 32-16n-11e	*	2075
Mid-Continent, Steward 31, near c w½ sw 15-17n-7e	8	2836
Archer & Allison, King "A" 7, sw nw se 22-17n-11e	20	2490
Marshal Strozier et al, House 3, nw sw se 22-17n-11e (pb 2089)	15	2501
Garvin County—		
Marshall Travis, Bullard 1, nw se ne 36-3n-3w	*	1560
Jackson County—		
W. F. Snebold, Hall 1, c nw nw 20-1n-20w	*	3426
Jefferson County—		
Seitz-Comegys-Seitz, Barnett 1, se se sw 10-6s-6w	*	2001
Kiowa County—		
Amerada, Boomer 1, ne ne ne 1-6n-14w	*	888
Shell, Watkins "B" 1, se sw se 18-7n-17w (pb 1324)	157	1329
Lincoln County—		
Elm Oil Co., Wilson 1, nw nw se 17-14n-6e (pb 3272)	*	3281
Dunnett Oil Co., Luckenbill 1, sw se se 29-15n-5e (pb 3548)	43	3550
Logan County—		
Continental, Suite 4, sw sw nw 7-17n-1w	35	5508
Love County—		
Magnolia, Wison 1, sw se nw 12-7s-2e	*	4935
Marshall County—		
Hewitt Trust, Adams 2, near c nw ne ne 6-8s-6e	60	550
Okfuskee County—		
D. Malernee, Beard 1, se sw ne 7-11n-8e	750	3710
Shell, Heffner 1, se nw nw 17-11n-9e	927	4136
Grimes & Neal, Dodson 2-A, c n½ ne se 35-11n-9e	15	1515
Oklahoma County—		
J. E. Trigg et al, Weaver 1, near c sw se ne nw 10-11n-3e	367	6485
Harper & Turner, Hauchin 1, ne ne se 18-14n-2w	7	5925
Okmulgee County—		
J. R. Schultz, Cox 1, sw ne sw 12-15n-11e	¶2	1170
Tibbins, Hayden 1, near c se nw sw 12-15n-11e	*	1815
Swick, Larney 7-A, near c e½ s½ ne nw 28-15n-14e	10	1689
Osage County—		
Moore 2, c n½ n½ nw 35-22n-8e	580	2504
Ohio, Osage 1, near c e½ e½ nw 32-22n-9e	¶4.5	2250
Norbla, 1, sw sw ne 9-26n-5e (pb 3065)	*	3210
Pottawatomie County—		
J. W. Garr, Walker 3, ne sw se 9-5n-5e	250	2481
Culver-Shephard, Raper 1, nw nw ne 16-5n-5e	40	2491
Sinclair-Prairie, Rice "B" 1, ne nw ne 17-7n-4e (pb 4112)	556	4223
S. K. Viersen, Tiffin 1, sw ne nw 27-8n-4e	845	3916
Panner & Jones, Denson 1, nw se se 33-8n-4e	200	3920
Amerada, Wellfelt 1, ne nw se 34-8n-4e	406	3897
Kerlyn, Maud 2, se se nw 32-8n-5e	200	4343
Simpson-Fell, Billington 3, c sw se 24-9n-4e	338	4195
Mudge, Bowling 2, se nw nw 25-9n-4e	118	4408
Magnolia, Heller Co. 1, se se se 35-10n-3e	366	5271
Hall-Jordan, Becore 1, sw ne sw 36-10n-3e (pb 5220)	43	5232

United States Well Completions—*Continued*

Company, Well and Location | Init. Prod. Bbls. | Depth

Seminole County—
Big Chief et al, Harrah 2, nw sw sw 10-5n-5e 5 2608
Eason & Grisso, Van Buskirk 1, c se nw 7-6n-8e (pb 1304)..... * 2895
Suppes & White, Spillman 1, nw nw sw 7-6n-8e 16 1250
C. C. Cummings Matkins 1, sw nw nw 13-9n-7e ..... ¶24 3369
Winona, Hawkins 1, sw se se 24-10n-7e (pb 3571)..... ¶3 3596
Stephens County—
Skelly, Glass 27, nw sw se 33-1s-8w (td 2336)..... 75 2589
Magnolia, Dillard 27, se sw ne ne 2-2s-5w 44 689
Tulsa County—
W. F. Eiting, Sand Springs Home 2, nw sw sw 26-19n-11e (pb 2395) * 2402

OLD WELLS DEEPENED

Carter County—
Cox & Hamon, Jackson 5, se se se sw 15-4s-2w (otd 1986) 25 2290
W. H. Smith, Ward 17, ne c ne 19-4s-2w (otd 2163).....1020 2203
Stephens County—
Cities Service, Cantrell 12, near c w½ ne se 32-1s-8w (otd 2159).. 35 2240

Pennsylvania

Bradford District—
Messer Oil Corp., Redfield ..... 1½ ..
Producers Bank & Trust Co., fee .. 5 ..
B. McCaffery et al, fee ..... 1 ..
J. A. Bucher et al, Kinley Oil Co. 1 ..
J. P. Kervin, South Penn Oil Co... ½ ..
Bradford Transit Co., 17 wells .... 17 ..
Forest Oil Corp., 2 wells ..... 2 ..
Forest Petroleum Corp. ..... 1 ..
Niagara Oil Corp., 6 wells ..... 6 ..
Glenn, McCool et al, Wright ..... 2 ..
Kendrick & Glenn, Hamilton .... 2 ..
Smith, Newton et al, Devore ..... ½ ..
Water Intake Wells—
Penn Valley Crude Oil No. 2 fee... .. ..
Forest Oil Corp., 2 wells ....
Forest Petroleum Corp., 3 wells ... .
Niagara Oil Corp., 5 wells ....
D. Y. M. Corp., No. 3 Bing 466 ....
Melvin-Towne Oil Co., fee ....
New York-Penn Gas Field—
Penn-York Natural Gas Co., Dan Monaghan ..... * ..
Middle District—
United Natural Gas Co., Miller.... ¶ ..
H. L. Helscel, fee ..... * ..
Glass & Highfield, R. J. Hanna & Co. ..... ½ ..
S. P. Oakes, Oakes ..... 1 ..
Six Mile Oil Co., Kirkpatrick ..... 3 ..
John Maharg, Yingling ..... * ..
Butler-Armstrong District—
United Natural Gas Co., McElroy.. ¶ ..
McCandless, McCarrier et al, S. T. Bell ..... * ..

SOUTHWEST PENNSYLVANIA

Armstrong County—
Equitable Gas, Watterson 2.....¶0.3 3625
Shelocta Oil & Gas Co., Blose 2..¶0.1 1460
John Wray et al, Ankemy 1 .....¶0.14 3320
Clarion County—
Penna. Fuel Supply Co., George 5.¶0.03 1400
J. Gailbraith et al, Fleming 2.....¶0.20 856
Fayette County—
Eberly et al, Haningosky 2.....¶0.07 2611
George Bartz et al, Fee 1.....¶0.07 1978
Greene County—
Wahler-Power Oil & Gas Co., Cumpston .....¶5.0 1374
Charles Hart et al, McGinnis 1....¶0.13 466
Jefferson County—
T. W. Phillips Gas & Oil Co., Carrier 2 .....¶0.07 3041
Washington County—
Equitable Gas Co., Roberts 1..... ¶ 3163
Westmoreland County—
Apollo Gas Co., Kepple 2.....¶0.14 3300
Blair 3 .....¶1.92 2818

West Texas

Andrews County (Emma)—
Adams & Bradley, University 4-A..1395 4281
Andrews County (North Cowden)—
Atlantic and Sun, Holt 1-C 354 4515
Borden County (Wildcat)—
Coffield & Guthrie, Mrs. E. M. Conrad 1 ..... * 3874
Cochran County (Slaughter)—
Atlantic, H. T. Boyd 27 .....1484 5065
Cascade Pet. Co., Igoe-Smith 5.....1700 5000
Devonian Oil Co., Woodley 1 ..... 755 4968
Magnolia, Woodley 11 ..... 977 4976
Crane County (Sand Hills)—
Gulf, Waddell 28 .....3974 4560
Crane County (Sand Hills Deep)—
Gulf, Tubb 1-B 6905 5660
Tubb 5-A 2580 5765
Crockett County (Wildcat)—
R. H. Henderson et al, Couch 1.... 336 2186
Crockett County (World-Powell)—
L. H. Armer, L. P. Powell 1-X.... 135 2616
H. G. Eastham, Powell 1 ..... † 2559
Ector County (Foster)—
Atlantic, J. L. Johnson 4-D 252 4220
J. L. Johnson 8-E 704 4247
Broderick & Calvert, Bagley 5 ..... 781 4325
Schermerhorn Oil Corp., Johnson 15-B 187 4177
Sinclair Prairie, Ruth Palmer 4... 489 4282
Ector County (Goldsmith)—
Gulf, Goldsmith 369 ..... 341 4198
Ector County (Jordan)—
Cities Service, University 8-B..... 459 3615
Ector County (North Cowden)—
Atlantic-Tide Water, B. H. Blakeney 2-B 357 4220
Phillips, Embar 4, sec 9, blk 44, 1-N, T&P sur 86 4280
Stanolind and Delaney, R. W. Smith 4-B 308 4400
R. W. Smith 3-C 190 4320
Texas Co., O. B. Holt 11 ..... 146 4500
Ector County (South Cowden)—
Forest Dev. Co., Paul Moss 15-H .. 567 4195
Gaines County (Seminole)—
Amerada, Emma J. Austin 6 ..... 640 5240
Coffey 6, (pb 5233) 278 5265
Turlin 11 ..... 926 5370
Magnolia, H & J, Sec 217, Well 13.. 15 5350
Gaines County (Wasson)—
A. G. Carter, Sharp 5 ..... 662 4980
Continental, Wasson 3-53 ..... 193 4940
Hockley County (Slaughter)—
S. E. Cone, Hensley 3 ..... 889 4975
Devonian Oil Co., Citizens Natl. Bank 5 .....1313 5006
Magnolia, Mallet 9-D 988 5000
Mallet 4-E 1188 5015
Milhoan Prod. Co., Fannin- Slaughter 2 ..... 218 4968
W. J. Richardson, Sun-Miller 1.... 364 4982
Rowan Drlg. Co., Mallet 2.....1080 5009
Stanolind, Slaughter 21-A 1495 5050
Slaughter 30-B 745 4995
Texas Co., Bob Slaughter 28 ..... 919 5020
Bob Slaughter 31 .....1355 4990
Bob Slaughter 33 .....1653 4990
Bob Slaughter 35 ..... 870 5010
Texas Pacific C&O Co., Mallet 1-B. 797 5027
Western States Gaso. Corp., Mallet 9-B 1253 5041
Howard County (Wildcat)—
Forest Dev. Corp., G. C. Stewart 1 * 1547
Howard County—
Ennisbrook Oil Co., Texas L&M 23.. 577 2925
Sinclair Prairie, Dodge 74 ..... 220 2800
Mitchell County (Northwest)—
W. M. Fentress, Strain 1 (pb 1715) 96 1751
Pecos County (Wildcat)—
H. L. Cain & S. G. Dunn, Downs 1 ¶1 1583
Allan Hargrove, Continental-University 1 ..... * 1746
Pure, G. C. Fraser et al 1..... * 417
Pecos County (Abell)—
Magnolia, Markey 2-B 1536 5390
State-Myrick 1-A 1447 5387
Pecos County (Apco)—
Skelly, J. S. Masterson 2 .....1492 4720
Pecos County (Lehn)—
Burk Royalty Co., Sullivan 3-C.... 84 1726
Pecos County (Taylor-Link)—
Sam Letwin, University 1-E 783 1635
Pecos County (Tobarg)—
Stanolind, M. A. Smith 11-B..... 75 457
Stanolind-Continental, J. H. Tippett 17-C 39 517
Pecos County (Walker)—
Cardinal Oil Co., White & Baker 3-J 113 2155
Pecos County (White-Baker)—
Cardinal Oil Co., White & Baker 1-K 113 1963
Terry County (Slaughter)—
Gulf, Mallet 9 .....1206 5025
Honolulu, Frazier 10 .....2144 4985
Upton County (Gulf-McElroy)—
Texas Pacific C&O Co., Egolf 1.... 242 3239
Ward County—
Gulf, O'Brien 183 ..... 226 2689
O'Brien 184 ..... 599 2771
Mid-States, Llano-Sloan 11 ..... 301 2609
Sinclair Prairie, Archenhold 30.... 398 2980
Texas Co., University 2-C 282 2680
University 9-E 1187 2685
Winkler County (Keystone)—
Ralph Lowe, Zachary 3 ..... 274 3347
Standard of Texas, Baird 16, Sec 12 287 3340
Baird 45, Sec 12 ..... 159 3438
Sam Weiner, B. F. Jenkins 9 .... 220 3400
Yoakum County (Waples-Platter)—
Aloco Oil Co., Knight 6 ..... 290 5313
Yoakum County (Wasson)—
Don Danvers, Willard 5-B 1093 5280
Gulf, Elliott 6 ..... 431 5217
Geo. Livermore, Abilene College 1. 221 5283
Magnolia, Ruth Bennett 9..... 162 5270

OLD WELL DEEPENED

Yoakum County (Wasson)—
Denver P&R Co., Whittenberg 2, (otd 5098) 960 5170

West Central Texas

Coleman County (Wildcat)—
L. L. Ingram, Matlock & Menear 1 * 1100
Coleman County—
Anzac Oil Corp., Overall 21 ..... * 2674
Comanche County (Wildcat)—
Campbell & Haygood, Stark 1 ... * 732
Hood County (Wildcat)—
J. M. Seaberry et al, Slocum Bros. 1 * 673
Jones County (Wildcat)—
T. D. Humphrey, Triplett 1 ..... * 2560
Jones County—
Fain-McGaha Oil Corp., Burns 6.. 99 1934
Humble, J. C. Sears 3 ..... * 3093
Sandy Ridge Oil Corp., McCreight 4 166 1930
Shackelford County—
J. F. Baker, Davis 5 ..... 50 1570
Green & Haggerty, Elliott 2-B 5 834
J. L. Hart et al, Clausell 1-A.... * 607
Clausell 2 ..... * 540
R. L. Rust, English 1 ..... * 630
E. H. R. Sabens et al, Shotwell 3.. 40 1608
Taylor County (Wildcat)—
Lewis Prod. Co., Huddleston 1 .... 198 2626

Texas Panhandle

Carson County—
Danciger, Block 7 ..... 257 3140
Gray County—
Drilling & Explor. Co., Henry 5 .. * 3290
Garber & Fagans, F. Lovett 2 .... 324 2925
Skelly, Schafer Ranch 132 ..... 301 3280
W. H. Taylor, Fee 3 ..... 408 2970
Texas Co., W. W. Harrah 14..... 249 3270
J. E. Williams 26..... 247 2780
Hutchinson County—
J. E. Crosbie, Pitts 42 ..... 295 2895
Danube Oil Co., Sanford 2-A 240 2815
E. J. Dunigan, Jr. et al, Luginbyle 2-A 98 3174
Gulf, E. Cockrell 8 ..... 69 3125
Phillips, Cockrell 76 ..... 186 3084
Supreme 5 ..... 168 3262
Cy Reiger, Cal Merchants 1 ..... 41 2681
Shell, Harvey Sisters 29-B 356 3077
Skelly, Watkins 10-A 171 2890
Stanolind, Lewis 12 ..... 188 2985
Moore 5 ..... 459 3079
Wheeler County—
Smith Bros., Refg. Co., Johnson 11-A 43 2505
Johnson 13 ..... 32 2566

Southwest Texas

SAN ANTONIO DISTRICT

Bexar County (Gas Ridge)—
Leavitt Corning, Jr., Bitter 3..... 1½ 552
Gas Ridge, Inc., Hamilton & Swain 32 ..... 1 430
Caldwell County (Tinney Creek)—
Goldsmith et al, Taylor 1..... 150 2525
Ogden & Riddle, Perry 1-A..... 20 2570
Wiegand Bros., Ellison 2..... † 2200
Caldwell County (Wildcat)—
R. R. Ogden, Hemphill 1..... * 1940
Frio County (Pearsall)—
W. B. Osborn et al, Davies 3..... 600 3919
Val Verde County (Vinnegaronne)—
Jack Dongis et al, Whitehead-Wardlow 3 ..... 3 323
Wilson County (Wildcat)—
H. J. Baker, Myers 1..... 3 640

OLD WELL DEEPENED

Bastrop County (Wildcat)—
Marts & Beaven, Cheney 1, outpost Elgin, otd 3370..... * 3585

CORPUS CHRISTI DISTRICT

Brooks County (Alta Mesa)—
Standard of Texas, Garcia 6 (tr 2). 125 2514
Calhoun County (Duck Bay)—
Coronado Corp., Welder 2-A..... 250 5657
Hidalgo County (Nichols)—
Phillips, Yturria 2 ..... 500 3975
Jim Wells County (Ben Bolt)—
Birdwell Oil Co., Hoffman 5-C..... * 5512
Jim Wells County (E. Premont)—
Magnolia, Seeligson 20..... 450 6082
Hidalgo County (Samfordyce)—
Phillips, Mendolia & Flores 1..... 150 4175
Jackson County (LaWard)—
Humble, Druschell 2 ..... 350 5227
Jackson County (Lolita)—
Magnolia, Mary Mitchell 24 (new sand) .....¶10 & 50 6460
Wellington, L. Ranch 6..... 500 6400
Jackson County (West Ranch)—
Magnolia, West 163-A..... 550 5746
West 186-A 650 5765
West 189-A 500 6145
Jackson County (West Ganado)—
Pure, Hamons 1..... 350 6350
Jackson County (Wildcat)—
Rowan & Hope, Milby 1..... * 6510
Nueces County (Agua Dulce)—
H. H. Howell, Schulze 4..... 600 6567
Kilgore Dev., Schulze 1..... 550 6532
L. M. Lockhart, Von Blucher 1.... ¶80 7505
Renwar Oil Corp., Ingram 1..... 500 6467
Richardson Pet. Co., Harlan 2..... 450 7130
Stanolind, Weinert 3..... 450 6550
Texon, C. J. Horne 3..... 550 7035

[*Continued on next page*]

United States Well Completions—*Continued*

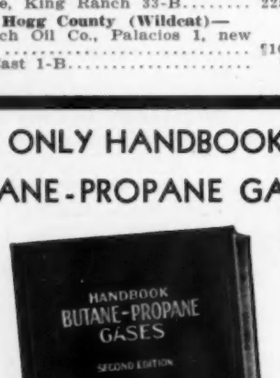
SOUTHWEST TEXAS—Continued

Company, Well and Location	Init. Prod. Bbls.	Depth
Nueces County (Bentonville-King)—		
Southern Minerals, Walker 14	350	5648
Nueces County (East Flour Bluff)—		
Humble, Flour Bluff State 1-M	400	6792
Nueces County (Minnie Bock)—		
Tom Graham, Dugger 4	250	3836
Phillips, W. S. Gandy	*	3915
Nueces County (N. Agua Dulce)—		
S.E.W. Oil Co., First Trust 1	550	6875
Nueces County (Stratton)—		
Southern Minerals, Stratton 26	350	6668
Refugio County (Refugio)—		
Hewitt and Dougherty, Reilly 2	*	6500
Victoria County (Coletto Creek)—		
American Liberty Oil Co., Machalez 5, new sand	¶20	4732
Victoria County (Cologne)—		
Houston Oil Co., Martin 3	150	5350
Victoria County (Heyser)—		
Humble & Plymouth, Vandeberge 9	350	5487
Victoria County (McFaddin)—		
Houston Oil Co., Fagan 8	530	5343
Victoria County (Wildcat)—		
Juanita Co., Davies 1	*	6020
Willacy County (Willamar)—		
Pan American, Burgess 1, outpost	750	7983

LAREDO DISTRICT

Duval County (Casa Blanca)—		
Adelon Oil Co., Martin 7-C	47	1152
Duval County (Charamousca)—		
M. L. Massingill, DCRC 2 (288)	75	1530
Duval County (Kreis)—		
Bridwell Escapule 1-A	148	3231
Perez 1	450	3222
Duval County (Lundell)—		
Gov't Wells Oil Co., Lundell 57	75	1550
Duval County (Piedre Lumbre)—		
Magnolia, DCRC 28 (203)	150	2118
Duval County (Seven Sisters)—		
Wellington (Del.), Welder-State 1-D	40	2422
Duval County (Wildcat)—		
D. H. Hilburn, Gruy 1	*	2755
J. L. Scott, Saenz 1	*	3270
Jim Hogg County (Colorado)—		
Humble, King Ranch 33-B	225	3010
Jim Hogg County (Wildcat)—		
Bid-Rich Oil Co., Palacios 1, new pool	¶10	3008
Sun, East 1-B	*	3806

THE ONLY HANDBOOK OF BUTANE-PROPANE GASES



Second Edition (Revised) September, 1938

CONTENTS: Semi-Bulk Distribution: Use of Butane in Buses: Combination Propane Operated Utility Plant: Use in Internal Combustion Engines: Design and Installation of Storage: Supply from Petroleum Refineries: Engineering Data on the Lower Olefins: Domestic Appliance Testing and Utilization: Economical Comparisons with Coal, Oil, Electricity, Producer Gas, Manufactured Gas: Town Plants: Manufacture from Natural Gas: Special Uses: Volume Correction Factors: Transportation: Use with other Gases: Analysis and Testing: Properties of Mixtures: Bottled Gas Distribution: Bibliography: Central Plant Directory: Catalogue Section.

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HOUSTON, TEXAS

Company, Well and Location	Init. Prod. Bbls.	Depth
Starr County (Sun)—		
Sun, Speer-State 11-B	550	4677
Olivarez 11	450	4942
Webb County (Killam)—		
O. W. Killam, Garcia-Villareal 13	¶1.6 & 12	2070
Garcia-Villareal 16	60	2075
Anderson & Killam, Garcia-Villareal 1	¶5	2524
Webb County (Wildcat)—		
Magnolia, DCRC, League 3, 1	*	2491

Texas Gulf Coast

Brazoria County (Chocolate Bayou)—		
Glenn H. McCarthy, Triangle 1	175	11,207
Brazoria County (North Lochridge)—		
H. E. Williams, Chapman 1	*	6511
Brazoria County (West Columbia)—		
Texas Co., Abrams 42	270	5728
Brazoria County (Old Ocean)—		
Shell, Smith 1	168	10,800
Hardin County (Batson)—		
Ada Belle, Davis 302	7	511
Harris County (Wildcat)—		
Traders, McDade 1	*	4200
Harris County (Dyersdale)—		
Jack Frazier, Miller 1	243	4070
Roemer & Modglin 2	215	4080
Harris County (Humble)—		
Eugene Jordan, Beatty 1	55	1383
Harris County (Tomball)—		
Humble, Reid 26	224	5568
Liberty County (Martha)—		
Stanolind, Seaberg 6-C	117	8240
Matagorda County (Markham)—		
Hamill & Hamill, Myers 3-A	96	2358
Thomar, Sisk 2-C	158	3163
Montgomery County (Wildcat)—		
Continental, Fraser 1	*	10,507

East Texas

East Texas Field (Joiner Area)—		
Royall Pet. Co., E. L. Pinkston 7	72	3580
Stanolind & Pure, W. H. Siler 74	625	3660
East Texas Field (Kilgore Area)—		
M. R. Newnham, Lloyd 2	1650	3577
Roosth & Genecov, Presbyterian Church 4	300	3559
Wheelock & Collins, W. M. Clayton 14	960	3535
East Texas Field (Longview Area)—		
Atlantic, M. Fisher 13	2000	3545
Magnolia, J. H. Beavers 12	2250	3552
Selby O. & G. Co., Snavely 17-D	1050	3564
Stanolind, Fannie Smith 14	1200	3545
Anderson County (Cayuga)—		
Tide Water & Seaboard, Lutterloh 8	182	4037
L. A. Robertson 1	110	4100
Franklin County (Talco)—		
Humble, Dawson et al 13	464	4301
Freestone County (Wortham)—		
Barney Carter, Poindexter 1	36	2946
Upshur County (Wildcats)—		
W. W. Bradley, Robinson 1	*	4635
Geo. Sutton (was L. S. White & O. S. Strickland), W. B. Gorman 1	*	4930
Werby & Tune, Newsome & Cunliffe 1	*	3990
Wood County (Hawkins)—		
O. D. Alsabrook & Fred Birdsong, Cobb 1	480	4770
Hollandsworth Drlg. Co. (was E. B. Germany), J. Prince 1	*	4888
Humble, S. Jeffrey 1	456	4854
E. N. Slaughter 1-A	400	4820
R. B. Smith 1-C	325	4821
D. L. Surratt 1	260	4835
T&P RR. 3	428	4840
Roger Lacy, C. G. Price 1	440	4823
C. H. Lyons, J. E. Ervin 1	240	4852
Navarro Oil Co., Maberry 3	328	4768
O. F. Wencker, Slaughter 1	460	4821

North Texas

Archer County (Hull-Silk)—		
Southern Pet. Explo. Co., Wilson 3	375	4046
Wilson 4	*	4068
Archer County—		
Bridwell Oil Co., Falls County School Land 4-D	38	1131
W. T. Hutchinson, Jr., L. F. Wilson 1	*	1595
Geo. Keith, Jr., et al, Neal 1	*	1251
A. F. Kimmell Williams 1	*	648
Petroleum Producers Co., King, Tr. 13	101	1244
Baylor County—		
Sinclair-Prairie, Turbeville 2	*	2554
Clay County—		
G. C. Golden, First Land Bank 5-C	55	1130
G. W. Graham et al, Hansard 21	*	420
Johnson & Kouri, Taylor Est. 6	50	1138
Cooke County—		
Richard Ross et al, Aug. and Mary Reiter 1	*	836
Trumter Pet. Co., Andress Bros. 22-B	18	782
Denton County (Wildcat)—		
Harvey Drlg. Co. and Reed, Knox 6	¶4¼	1469
Jack County (Wildcat)—		
Ben Rankin and Elliott Prod. Co., Stewart 1	160	4527
Jack County—		
T. C. Jones Co., Roach 2	10	516
Lanning & Coffield, Knox 1	*	3405
Paul P. Steed et al, Derrick 3-A	*	3303
Montague County (Wildcat)—		
Superior Oil Co., Seay 1-A	225	6014
Montague County—		
Falls Ref. Co., Bouldin "Crow" 17	7	795
Pure, L. Keck 15	10	824
Wichita County (K-M-A)—		
J. B. Farrell, J. & J. Waggoner Est. 9-H	175	3808
Hanlon-Buchanan et al, Fassett-Tuttle "C" 29-a	290	4088
W. B. Omohundro, Hooks 15	225	3818
Wichita County (K-M-A Ellenberger)—		
Blanco Oil Co., and Al Buchanan, Thom 8	650	4373
Tide Water and Perkins-Cullum, Ferguson 3	375	4263
Pettit 10	490	4339
Wichita County—		
C. B. Christie et al, Jackson 1-B	*	1345
C. W. Clark, Simpson 5	51	1762
W. H. Hammon, Johnson 4	75	1306
Hanlon-Buchanan et al, Burnett et al 5-A	10	706
C. E. Morrison, Preston 1	*	1382
Underwood Oil Co., Stine Est. 11	20	1315
Wilbarger County (Fargo)—		
Humble, W. O. Anderson 3	102	4667
Wilbarger County—		
W. T. Waggoner Est., Fee "AA" 33	21	3010
Young County—		
Craig & Wilson, Clark 1	*	840
W. F. Palmer, R. Campbell 3-D	70	905

GAS INJECTION WELL

Cooke County—		
Trumter Petr. Co., Andress Bros. 1-A	..	772

West Virginia

Boone County—		
Libby-Owens, Cassingham Coal Land Co. 370	20	2404
Pure, LaSollette, Robson & Prichard 46	¶0.21	....
Braxton County—		
Pittsburgh & West Virginia, Burk et al 1	¶7.0	1653
Calhoun County—		
South Penn, Sharps 7	5	1920
Carol Poling, Robinson 1	15	1962
Clay County—		
Virginian Gasoline & Oil Co., Brown, Swann & Goshorn V 1297	3	1868
Gilmer County—		
Roberts & Weekley, Bonnett 3	¶0.11	1440
Jackson County—		
Columbian Carbon Co., Putnam 5	¶2.48	5302
Kanawha County—		
Godfrey L. Cabot, Inc., Older 1	¶0.57	4889
Bowen 1	¶2.44	5320
Putnam Co. 17	¶1.06	2025
Pleasants County—		
Don E. White et al, Dennis Heirs 2	¶0.13	1665
Ritchie County—		
Moats & Barker, Cox 1	¶0.38	2098
Taylor County—		
Hope, McElroy 8543	¶0.05	2205
Upshur County—		
Cumberland & Allegheny, Harris 308	¶0.23	2405
Wetzel County—		
A. G. Isminger, Blatt 1	*	1267
Wirt County—		
Grant Fowler, Gerald Lockhart 1	*	460
S. W. Douglass, Kidwell Heirs 15	*	400
Wood County—		
H. H. Uhl, Reynolds 9	*	640

OLD WELLS DRILLED DEEPER

Lincoln County—		
Kanawha Gas & Utilities Co., Hager 1	¶0.22	3511
Marion County—		
Monroe & Laughlin, Moffitt 1	4	3134
Monongalia County—		
Marietta Pipe & Supply Co., Broadwater 1	¶0.3	3275
Putnam County—		
Wood Gas Co., Wood 1 (otd 1031)	¶0.09	2119

Wyoming

Carbon County (Wertz)—		
Sinclair-Wyoming, Wertz 21-A, nw sw sw 6-20n-89w	1080	5806
Niobrara County (Lance Creek)—		
Continental, Schuricht 9-A, nw nw sw 5-35n-65w	552	5260
Park County (Frannie)—		
Stanolind, Rosenberg, 21-X, cne sw nw 25-58n-98w	200	3030

WILDCAT REPORT
New Starts and Completions

ALABAMA

FIRST REPORT

Lauderdale County — Buford Fillingame, Mecke 1, sec 20-1s-10w, rig.

COMPLETION

Fayette County—J. W. Mills, W. G. Musgrove 1, c nw 10-15s-12w, sg 517-38 ft, seam of coal 589-92 ft; sg 595 ft, abnd 1495 ft, flowing fresh water and sg in Pottsville.

ARKANSAS

FIRST REPORT

Nevada County—Barney Dunlap, Hart 1, c se sw 17-13-21, rig.

COMPLETION

La Fayette County—Ohio, Gardner 1, nw sw 13-16-24, top Smackover lime 6939 ft, so 7079 ft, abnd 7873 ft, Permian salt.

CALIFORNIA

FIRST REPORT

Fresno County—Bandini Pet. Co.'s S. P. 82-23; 23-15-17, Raisin City, lcn.

COMPLETIONS

Fresno County—General's Burrel 1, 2-17-18, Raisin City area, abnd Cretaceous, 9400 ft.

Kern County—Superior's KCL 13, 18-29-25, West Greeley area, abnd 14,123 ft in Miocene.

ILLINOIS

FIRST REPORTS

Edwards County—C. S. Steele's Couch 1, 170 ft w of sw se se 6-1s-11e, lcn. N. K. Menefee's Dowell 1, se se ne 31-1n-11e, lcn.

Fayette County—Homer Luttrell's Ford 1, ne ne nw 31-5n-3e, dr.

Hamilton County—Gus Kunze's Young 1, nw nw ne sw 29-3s-6w, dr.

Jefferson County—Bell Bros.'s Osborn 1, ne se ne 25-2s-4e, lcn, Nash Redwine et al's Blackenship 1, nw nw sw 6-3s-2e, dr, Redwine-Blalock et a's Bankenship 1, Dr. -A. Hutchens' Gilman 1, nw nw nw 18-3s-2e, lcn.

St. Clair County—Ed Gieck's Frees 1, ne nw ne ne 13-2s-8w, dr.

Wayne County — New Penn Dev. Corp.'s Haniss 1, w½ ne nw 31-2s-9e, lcn. Pioneer Drlg. Co. et al's Schell 1, n½ nw sw 25-1n-6, dr.

COMPLETIONS

Champaign County—J. H. Wall's Baird 1, nw nw nw 9-18n-10e, otd 1180 ft, abnd 1200 ft.

Gallatin County—Clay S. Wilson's Rogers 1, nw ne nw 16-8s-8e, abnd 505 ft.

Hamilton County—Cameron Bros.' Lockwood 1, ne ne nw 23-6s-5e, A. V. 3082-3110 ft, td 3257 ft, pb 3110 ft, 1032 bbls oil.

Jackson County—Barton & Shipman's Maharvy 1, ne ne se 20-9s-3w, abnd 1850 ft.

Lawrence County—Midwest Dev. Co.'s Mullens 1, nw nw se 15-2n-12w, abnd 2175 ft.

Macoupin County—Dortomedge Oil Co.'s Hunsinger 1, sw nw ne 25-7n-7w, abnd 650 ft.

White County—Arrow Drlg. Co.'s Aud 1, se sw se 35-6s-8e, abnd 3167 ft. Tristate Crude Dev.'s Hamilton 1, c e½ e½ sw 14-7s-8e, abnd 2923 ft.

INDIANA

FIRST REPORTS

Gibson County—R. D. Brown's Antell 1, c ne se 20-1s-11w, lcn.

Pike County—Geo. Shumos' McCain 1, nw se nw 28-2n-7w, lcn.

Vanderburg County—H. H. Sprowles' Smith 1, 280 ft e of c n½ se 14-4n-10w, lcn.

COMPLETION

Posey County—Paul Rossi's Dempsemeyer et al 1, nw nw ne 32-6s-12w, abnd 2451 ft.

KANSAS

FIRST REPORTS

Butler County—Adair & Morton et al's Lietzke 1, ne nw ne 5-28s-5e, dr. Busher & Cling's Asmuseen 1, sw nw nw 15-29s-4e, ma.

Graham County—Harbar Drlg.'s Wells 1, c e½ ne sw 18-7s-24w, brr.

McPherson County—Westgate-Greenland et al's Robertson 1, ne ne se 22-20s-3w, Pitts.

COMPLETIONS

Barton County—Continental's Johnson 1, sw nw ne 28-20s-6w, Miss. 3377-85 ft, abnd 3434 ft.

Butler County—Plymate-Bornholt's Falk 1, sw sw ne 14-29s-3e, Lansing 1880 ft, Kansas City 2230 ft, Mississippi 2740 ft, abnd 2800 ft.

Ellis County—Darby's Dreiling 1, se se nw 28-13s-17w, Lansing 3259 ft, Congl. 3508, Arb. 3521, acid 3500 gals 3294-3320 ft, pump pot 352 bbls oil, 144 bbls water.

Greenwood County — Winkleman & Abels' Hillard 1, ne ne nw 27-27s-11e, abnd 1300 ft.

Reno County—Hall-Jordan's Stucky 1-A, c n½ nw sw 31-25s-5w, Lansing 3805 ft, Mississippi 3491 ft, Viola 3891 ft, Simpson 3921 ft, Arbuckle 4019-4943 ft, abnd.

Russell County—Phil-Han Oil's Ney 1, nw sw sw 2-15s-12w, Anhydrite 587 ft, Neba 1885 ft, Lansing 2850 ft, Congl 3155 ft, Arbuckle 3207 ft, abnd 3213 ft.

Sedgewick County—W. S. Fees et al's Bartholomew 1, c n½ ne sw 30-27s-4w, Lansing 2895 ft, Mississippi 3721 ft, Viola 4106 ft, Simpson 4125-33 ft, abnd 4133 ft.

KENTUCKY

COMPLETIONS

Henderson County—Minton & Dial's Deacon 1, 17-Q-20, abnd 2756 ft.

Union County—Sun & Kenty Gas' Reyburn 1, 20-O-18, abnd 2632 ft.

NORTH LOUISIANA

FIRST REPORTS

Catahoula Parish—Carter, Tensas Delta G-1, c ne sw 30-6n-5e, mat. H. L. Hunt, Goodpine F-21, c nw sw 9-10n-5e, dr.

Concordia Parish—Harry W. Elliott, Brown 1, ne sw 33-8n-8e, rig; J. K. Hughes, Merrill 1, c e½ sw 23-7n-9e, mat.

Grant Parish—H. L. Hunt, Goodpine F-6, se nw 29-9n-1w, dr.

La Salle Parish—Carter, Tensas Delta 1, c nw nw 5-5n-4e, mat. Carter and N. H. Wheelis, Louisiana Delta Hdw. A-1, c nw ne 26-7n-4e, rig.

COMPLETIONS

Catahoula Parish—Carter et al, Tensas Delta B-1 c ne se 14-5n-5e, top Cockfield 229, Cane River 3695, Wilcox 3938, oil sand 5110-32 ft, perf 7-in csg 5112-17 ft, flowed 154 bbls neat oil 46-gr in 24 hours, td 6000 ft.

La Salle Parish—H. L. Hunt, Goodpine F-19, c ne sw 36-9n-4e, abnd 5460 ft.

SOUTH LOUISIANA

FIRST REPORTS

Plaquemines Parish—Hare & Luria's Collin 1, 1952 ft w U.S.C.G.S. Triangulation Station "East Spire Bursa church" in sec 53-20s-29e, lcn.

Terrebonne Parish—Gulf's Eschete 1, Lapyrouse area, 2020 ft e alg s/1 lot 4, tr B fr sw cor & 97 ft n at ra in sec 67-20s-18e, lcn.

COMPLETIONS

St. Martin Parish—Amerada & Phillips' Arm of Grand Lake 1, in se cor sec 31-11s-10e, flowed 264 bbls thru 5/32-in ch to open fld. Pipe perf 9025-40 ft, td 9995.

Iberia Parish—Plymouth's Big Pigeon 1, sec 33-12s-11e, 3½ mi se Bayou Pigeon, td 11,836 ft, abnd.

MICHIGAN

FIRST REPORTS

Allegan County—J. H. Fitchett's Belt 1, se nw ne 10-4n-15w, rig.

Mason County—Campbell, Merrill & Dean's Renn 1, sw ne se 21-17n-15w, dr.

Newaygo County—E. B. Strom's Messell 1, sw sw ne 10-13n-14w, rig.

COMPLETIONS

Arenac County—William Fisher's Brooks 1, c e½ ne se 9-14n-4e, Dundee 2804 ft, abnd 3030 ft.

Bay County—Century & Major's McDonald 1, sw se sw 2-18n-3e, Dundee 2819 ft, abnd 2995 ft.

Clare County—Union Dr. Co.'s Newland 1, se se nw 19-20n-4w, Dundee 3988 ft, abnd 4095 ft.

Kent County—Homer Fulton's Dawson 1, ne sw ne 21-5n-10w, Traverse 1861 ft, abnd 1971 ft.

Livingstone County—Voorhees Dr. Co.'s Reserve 1, nw nw ne 24-3n-6e, abnd 1800 ft, Fisher-McCall's Herbst 1, se sw nw 24-2n-5e, abnd 1200 ft.

Otsego County—Burks White's Koski 1, ne nw ne 36-31n-3w, abnd 1600 ft.

MISSISSIPPI

COMPLETION

Yalabousha County—J. E. Green, Geldman 1, 23-25n-6e, top Selma chalk 1259 ft, abnd 2400 ft.

NEBRASKA

FIRST REPORTS

Harlan County—Smitson & Son's Lofton 1, c nw sw, lcn.

Johnson County—August Krueger's Roe 1, ne se sw sw 5-7n-7e, dr.

Richardson County—Powers Oil et al's Albin Estate 1, sw nw sw 10-1n-14e, lcn.

COMPLETIONS

Howard County — Bredthayer & Taylor Drlg.'s Bookwalter-Land 1, c nw sw 29-18n-13w, Sandy Congl 2990 ft, Viola 3095 ft, Simpson 3260 ft, Cambrian Dolomite 3360 ft, LaMotte 3450 ft, Pre-Cambrian 3504-05 ft, abnd 3505 ft.

Richardson County—Uhri Oil Corp.'s Ogle 1-A, nw se se 9-1n-14e, owdd-otd 2260 ft, Hunton 2258 ft, td 2264 ft, pb 2254 ft, acid 200 gals, pump 50 bbls oil and 600 bbls water. J. E. Palensky et al's Kalous 2, sw sw sw 5-2n-13e, Burlingame 110 ft, Topeka 260 ft, Marmaton 760 ft, Cherokee 780 ft, Hunton 1004 ft, Viola 1495 ft, abnd 1598 ft.

NEW MEXICO

FIRST REPORT

Eddy County—Paul English's Jones 1, 1980 ft from n and 660 ft from e lines Sec 24-19s-31e, lcn.

COMPLETION

Eddy County—Jones, Yates, et al's Pickrell 1, 5-19s-26e, abnd 1015 ft.

OKLAHOMA

FIRST REPORTS

Cado County—Amerada's Sprages 1, c se nw 18-8n-12w, dr.

Carter County—Sinclair-Prairie's Ingram 1, nw ne nw 21-4s-3w, dk.

Cherokee County—Jack Mobley's Carter 1, nw ne sw 22-16n-22e, mim.

Comanche County—Texas Co.'s Gamble 1, c sw ne se 5-3n-10w, dr. Texas Co.'s State Land 1, c sw se nw 13-3n-10w, sd.

Garvin County—Ohio's Freeman 1, se c 14-1n-3w, dr.

Hughes County—Caroline O&G Co.'s Webster 1, sw sw sw 6-6n-10e, c&p.

Jackson County—T. I. Sanders' Gamble 1, se c 12-3n-21w, dr.

Kiowa County—Amerada's Boomer 1, c ne ne ne 1-6n-14w, sd. Amerada's Boomer 2, c nw sw ne 1-6n-14w, dr. McWhirter-Hinnerman's Vanderneck 1-A, 3-7n-19w, dr. B. G. Walrick's Wayne 1, c ne se se 27-7n-18w, mch.

Pontotoc County—Blackwell O&G Co.'s Riddle 1, nw nw ne 9-3n-5e, spud.

Okfuskee County—John Droppleman's Yahola 1, ne ne sw 15-11n-10e, rig.

Seminole County—Sooner O&G Co.'s Pechachek 1, sw nw sw 12-10n-7e, c&p.

Stephens County—Carl Carter's Peek 1, sw sw nw ne 1-3s-6w, dr.

COMPLETIONS

Creek County—Glen Cole et al's Citizens Natl. 1, nw nw se 25-14n-10e, sand 1885-1930 ft, salt sand 2034-2205 ft, Wapa 2705 ft, Dutcher 2580-2625 ft, Mississippian 2805 ft, abnd 3292 ft, Dunnett Oil Co.'s Luckenbill 1, sw se se 29-15n-10e, Pure 3504 ft, shot 3520-45 ft, oilh, dd 3550 ft, pb 3548 ft, 43 bbls oil, 1 bbl water. Zephyr Drlg. Co.'s Irelan A-1, ne se nw 3-16n-8e, abnd 3827 ft. Jones Assoc. Oil's Jennings 1-A, nw se ne 18-16n-8e, Bartlesville 2955-74 ft, Wilcox 3670-3726, abnd 3726 ft.

Garvin County—Gled Oil Co.'s Gardner 1, nw se ne 36-3n-3w, Red Ball 865 ft, abnd 1560 ft.

Kiowa County—Kelly Wells' Oster 1-A, c sw ne nw 33-7n-17w, Simpson shale 822-1015 ft, abnd 1102 ft.

Logan County—Roy P. Deihl et al's Lesh 1, ne ne ne 16-16n-1w, abnd 5840 ft.

Noble County—Elm Oil Co.'s Hicks 1, se se sw 36-22n-2w, Avant 3000 ft, Layton 3200 ft, Glb Ls. 4260-4560 ft, Miss. 4850 ft, Woodford 5115 ft, Dense 5152 ft, Sandy Dolo 5195 ft, Wilcox 5213 ft, abnd.

Osage County—Norbla et al's Osage 1, sw sw ne 9-26n-5e, Burbank 3040-50 ft, Miss. Chat 3122-35 ft, Miss. Lime 3135 ft, td 3210 ft, pb 3205 ft abnd.

Okfuskee County—C. B. Malernee's Beard 1, se sw ne 7-11n-8e, Cromwell 3695 ft, flow 624 bbls oil, 3,700,000 gas. Shell's Heffner 1, nw se nw 17-11n-9e, Cromwell sand 3386-3446 ft, Mayes 3725 ft, Woodford 3852 ft, Hunton 3872 ft, Sylvan 3962 ft, Viola 4942 ft, Second Wilcox 4114 ft, td 4127 ft, 427 bbls oil 1 hr, 1,500,000 ft gas.

Oklahoma County—Harper Turner's Harper 1, nw nw sw 17-14n-2w, Chicken farm sand 5882 ft, 10 bbls oil. Harper & Turner's Kunc 1, nw sw nw 33-14n-3w, 1st Pawhuska lime 2890 ft, 2nd Pawhuska lime 3070 ft, 3rd Pawhuska lime 3230 ft, Oread Dolo. 3600 ft, 1st Tonk. Dolo. 3820 ft, 2nd Tonk Dolo. 3930 ft, Avant 4300 ft, Dewey 4360 ft, Okla. City 4895 ft, Big Lime 5560 ft, Oswego 5590-5660 ft, Verdigris 5710 ft, Pink. lime 5855 ft, Red Ford 5755 ft, Inola 5785 ft, Bartlesville 5819-44 ft, Brown lime 5855 ft, Base Penn-Hunton 5870 ft, td 6132 ft, 10 bbls oil.

Payne County—Tomlinson et al's Williams 1, ne se nw 4-19n-2e, Upper Paw. 1250 ft, Lower Paw. 1690 ft, Oread 2210 ft, Dewey 2875 ft, Upper Lay. 3120 ft, Hog. 3260 ft, Ccb. 3670 ft, Upper Clev. 3715-40 ft, Wheeler 3860-70 ft, Big Ls. 3870 ft, Oswego 3995 ft, Pink Ls. 4215 ft, Inola 4255 ft, Art. 4285-94 ft, Miss. 4481 ft, 1st Wilcox 4886 ft, 2nd Wilcox 4944 ft, abnd 4955 ft.

Pottawatomie County—M. A. Halsey et al's Brandenburg 1, nw nw se 23-7n-3e, Wilcox 4801 ft, abnd 4817 ft. M. T. Meyers' Johnson 1, ne se ne 34-10n-3e, Viola 5180 ft, Dense 5228 ft, Dolo. 5251 ft, Wilcox 5290 ft, abnd 5308 ft.

SOUTHWEST TEXAS

FIRST REPORTS

Aransas County—Gulf's Holliman 1, Falvel sur, 10 mi n Lamar, lcn 9000-ft.

Bastrop County—Marts & Beaven's Cartwright 1, Glasscock sur, 2/3 mi ne Elgin disc, lcn.

Bee County—Arkansas Fuel et al's Baird 1, Rountree sur, Ab 480, 7 mi sw Beeville, lcn 5000-ft test.

Dimmitt County—Wellington's Sullivan 1-B, SP sur 602, 12 mi nw Carrizo Spgs, lcn.

Duval County—Luling O&G Co.'s Danciger 1, F. Salinas sur, No. 18, 11 mi sw San Diego, lcn 5000-ft test.

Jim Hogg County—Sun's Ramirez 1, Agua Nuevada Abajo Gr, se part county, mi.

Live Oak County—A. R. Pohler's Maurin 1, S. Hayes sur, 3 mi nw Whitsett, lcn.

Milam County—Meca Prod. Co. et al's C. H. Von Gonten 1, J. A. de Pena sur, 4 mi nw Buckholts, mim.

Refugio County—Rutherford & Waldron's Avery 1, E. Perry League, ru 6500-ft test.

Starr County—Hagan & Stewart Oil Co.'s Salinas 2-A, Sacatosa Gr, 40 mi nw Rio Grande City, lcn. T. E. Stephens' Ramirez 1, Sh 137, Por 68, 14 mi nw Roma, lcn.

COMPLETIONS

Bastrop County—Marts & Beaven's Cheney 1, Glasscock sur, ne Elgin fld, otd 3370 ft, deepened, abnd 3585 ft.

Caldwell County—R. R. Ogden's Hemphill 1, Pace sur, 5 mi nw Dale, abnd 1940 ft.

Duval County—Hilburn et al's Gruy 1, Sus 391, abnd 2755 ft. J. L. Scott's Saenz 1, sec 526, 2 mi ne Kreis fld, abnd 3270 ft, may rework later.

Jackson County—Magnolia's Mitchell 24, Lolita, td 6460 ft, comp 2,200,000 cu ft gas, spray 55 gr dist ⅝, 1850 lbs tp, 2150 lbs cp, perf 5820-32, new sand. Rowan & Hope's Milby Est 1, Williams Lge, 3½ mi ne Edna, abnd 6510 ft.

Jim Hogg County—Sid-Rich Oil Co.'s Palacios 1, blk 17, sec 287, ¾ mi e Randado fld, comp gas well spraying oil ⅛ tp 985 lbs, cp 1051 lbs, perf 2924-30 ft, new fld. Sun's East 1-B, El Randado Gr, 25 mi sw Hebbronville, abnd 3806 ft.

Victoria County — American Liberty's Machales 5, Colletto Crk, td 4732 ft, comp 2,250,000 cu ft gas 7/64-in ch 1400 lbs tp, 1425 lbs cp, perf 3573-89 ft; opens new sand. Juanita Corp.'s Davies 1, Garcia Gr, 3 mi sw Inez, abnd 6020 ft.

Webb County—Magnolia's DCRC League 3, 1, 15 mi nw Freer, abnd 2491 ft.

Wilson County—H. J. Baker's Myers 1, H. J. Arrocha sur, 1 mi ne Floresville, pump 5 bpd sand 635-40 ft; new fld.

NORTH TEXAS

FIRST REPORTS

Archer County—Sunray Oil Co.'s C. W. Seibold 1, 560 ft from e and 330 ft from s lines of L. P. Jones sur, Abst 939, Ellenberger or 5000 ft test, lcn. Phillips' H. Reilly, Jr. 1, 666 ft from s and w lines of NW sec 13, blk 4, H&TC sur, lcn.

Clay County—Shell's Mrs. J. W. Maddox 1, 2272 ft from n and 2114 ft from w lines of M. Hughes sur, abst 179, 5600 ft test, lcn.

Cooke County—Jas. L. Anderson's A. L. Osburn 1, 491 ft from n and 330 ft from e lines of B. Sullivan sur, abst 581, 2500 ft rotary test, sp.

Cottle County—Bruce Sullivan and Hill & Hill's M. Sikes 1, center nw sec 24, blk M, R. M. Thompson sur, 4200 ft test, lcn.

Rockwall County—City of Rockwall's Fee 1, 60 ft n and 25 ft from w lines of Lot 2, blk "R," Rockwall townsite, in B. F. Boydstun sur, abst 154, lcn.

COMPLETIONS

Denton County — Harvey Drlg. Co. and Reed's J. P. Knox 6, D. Boone sur, abst 100, gas sand 1456-1469 ft, completed for 4¼ million cu ft gas, 1469 ft.

Jack County—Ben Rankin and Elliott Prod. Co.'s W. T. Stewart 1, sec 2799, TE&L Co. sur, td 4527 ft, pb 3520 ft, completed for 160 bbls daily.

Montague County—Superior Oil Co.'s Wilmer D. Seay 1-A, A. B. Morton sur, abst 1175, oil shows 5775-5804 ft in broken shale, lime, and conglomerate, at 5839-5850 ft in conglomerate, flowed 116 bbls oil in 8 hrs through ¼-in choke on tubing, from perforations in casing after treated with 1000 gallons mud acid; td 6014 ft, pb to 5911 ft.

EAST TEXAS

FIRST REPORTS

Robertson County—Heith & Morrison's Martin 1, W. R. Cox sur, ½ mi nw Easterly, 467 ft from n and 466 ft from w lines of 225 ac tract, or 467 ft out n corner of sur, drk.

Smith County—C. E. West et al's J. R. Collier 1, J. M. Procella sur, 4 mi e Troup, 985 ft from s and 944 ft from e lines of 159.6 ac tr and aprx 2700 ft from n and 2800 ft from e lines of sur, drk.

Wood County—A. L. Andree et al's E. J. Henry Est. 1, J. Ewing sur, 1½ mi s Golden, 467 ft from n and e lines of 140 ac tr and aprx 1700 ft from w and 467 ft from n lines of sur, ru.

COMPLETIONS

Upshur County—W. W. Bradley's D. G. Robinson 1, Jno. Sanders sur, 1½ mi ne Big Sandy, Pecan Gap 2825-3165 ft, Austin chalk 4039-4162, Woodbine 4320-4518 ft, water sand, abnd 4635 ft. Geo. Sutton's (was L. S. White and O. S. Strickland's) W. B. Gorman 1, S. G. Slayton sur, 1 mi sw Big Sandy, Pecan Gap 3386-3735 ft, Woodbine 4582-4815 ft, salt water sand 4850 ft, abnd 4930 ft. Werby & Tune's Newsome & Cunliffe 1, Ahira Butler sur, 1 mi n Coffeyville, cored salt water sand 3798-3817 ft, top Woodbine 3814 ft, abnd 3990 ft.

WEST TEXAS

FIRST REPORTS

Brewster County—Fred Turner, Jr.'s W. W. Turney 1, corrected lcn, 1039 ft from s and 1173 from w lines of sec 34, blk A-2, GH&H RR sur.

Glasscock County — E. M. Wahlenmaier's Peebles & Bentz (Texas Land Trust) 1, 2 mi sw Garden City, 467 ft from s and w lines of sec 15, blk 34, T4s, T&P sur, 3500 ft test of subsurface high, lcn.

Mitchell County—Rance Dockery, H. L. Lockhart, and B. F. Robbins' Wulfjen 1, 11 mi se Colorado City, sec 5 or 9, blk 13, H&TC sur, lcn.

Pecos County—Cardinal Oil Co.'s University 1, sec 3, semi-wildcat, 1715 ft from n and 2370 ft from w lines of sec 3, blk 17, Univ. sur, 1½ mi se Milton Unger's Shell-Univ 1, east extension for Taylor-Link pool, ru. Jas. L. Cooper's Humble-University 1, ½ mi nw Walker area, 330 ft from s and e lines of sec 13, blk 16, Univ sur, lcn. Pure's G. C. Fraser et al (TXL) 1-A, 6000 ft Delaware test, 660 ft from s and w lines of sec 31, blk 49, T-10, T&P sur, 20 mi sw Ft. Stockton and 1¾ mi n of Pure's Fraser 1, which quit at shallow depth, because of structure (see completion data below), ru.

COMPLETIONS

Borden County—Coffield & Guthrie's Mrs. E. M. Conrad 1, 1320 ft from n and w lines of sec 79, blk 20, Lavaca Navigation Co. sur, 7 mi w Sharon fld, water in lime, abnd at 3874 ft.

Crockett County—R. H. Henderson et al's Mrs. C. Couch 1, 467 ft from n and 2173 ft from e lines of sec 37, blk GG, HE&WT sur, 9 mi se Noelke fld, flowed 24.5-gr oil through 2-in tubing after acid treatment of pay at 2166-2186 ft at rate 336 bbls day, td 2186 ft.

Howard County—Forest Development Corp.'s G. C. Stewart 1, sec 130, blk 29, W&NW sur, ¾ mi n of Howard-Glasscock fld, unsuccessful fishing job, abnd 1547 ft.

Pecos County—H. L. Cain and S. G. Dunn's M. J. Downs 1, 1787 ft from sw and 853 ft from se lines of sec 105, blk 8, H&GN sur, 3½ mi s of Payton pool, td 1583 ft, pb 1507 ft, completed as 1,000,000 ft gas well. Allan Hargrove's Continental-University 1, 1055 ft from n and 1680 ft from e lines of sec 4, blk 17, University sur, 1 mi s by se of Taylor-Link pool, abnd 1746 ft. Pure's G. C. Fraser et al 1, 660 ft from w and 1980 ft from s lines of sec 43, blk 49, Twp 10, T&P sur, 20 mi sw Ft. Stockton, off-structure, abnd 417 ft, to start Fraser 1-A (see location data above).

WEST CENTRAL TEXAS

FIRST REPORTS

Eastland County—Monark Oil & Gas Co.'s Fee 1, 1500 ft from e and 1800 ft from n lines, H&TC 44, blk 4, lcn.

Jones County—Roeser & Pendleton's Moore 1, 242 ft from n and 330 ft from e lines of 40 ac farm on e side T&P 33, blk 15, lcn.

Taylor County—Stoley Oil Co.'s B. Morgan 1, 330 ft from s and e lines, lot 8, Grimes County School Lands 124, lcn.

COMPLETIONS

Coleman County—L. L. Ingram's Matlock & Menear 1, 2000 ft from e and 300 ft from n lines of farm in Elijah Votaw sur 224, abnd 1100 ft.

Comanche County—Campbell & Haygood's Stark 1, Asa Hoxey sur, abst 423, oil show 731-732, casing collapsed, lost hole, junked 732 ft.

Hood County—J. M. Seaberry et al's Slocum Bros. 1, Nancy Smith sur, abst 512, abnd 673 ft.

Jones County—T. D. Humphrey's Triplett 1, Jas. Goocher sur 199, oil show in lime 2005-2070 ft, 2370-2380 ft, and 2435-2445 ft, abnd 2560 ft.

Taylor County—Lewis Prod. Co.'s Huddleston 1, Lot 6, Grimes County School Lands sur 124, pumped and flowed 190 bbls oil in 23 hours from lime 2622-2626 ft.

TEXAS GULF COAST

FIRST REPORTS

Hardin County—H. F. Baker's Minor 1, Sour Lake flank, S. Jackson sur, 3000 ft test, lcn; Minor 2, 3000-ft test, lcn.

Montgomery County—J. H. Blaffer's Bailey 1, nw edge Conroe fld, R. Kuykendall sur, 5000-ft test, lcn.

COMPLETIONS

Brazoria County—G. H. McCarthy's Triangle 1, ¾ mi n Chocolate Bayou, Hooper & Wade sur, perf 9658-80, flowed 175 bbls ¼-in ch, tp 3050, cp 3000, td 11,207 ft.

Harris County—Traders Oil Co.'s McDade 1, 8 mi ne Houston, Nicholas Brady sur, abnd 4200 ft.

Montgomery County—Continental's Fraser 1, east of Willis in De la Garza sur, abnd 10,507 ft.

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MEN IN THE INDUSTRY'S NEWS

E. E. DEBACK, general manager of Chicago Corporation, Corpus Christi, has been elected vice president of Natural Gasoline Association of America. He will head up a new department, the high-pressure-gas division, which was created by the board of directors at its meeting September 9.

His election and creation of the division is in effect a consolidation with American Recycling Association of which he was president. It was formed in November, 1941, at Kingsville, Texas. The new division is an integral part of Natural Gasoline Association of America and will have headquarters at 923 Kennedy building, Tulsa, although most of its meetings will be in centers near distillate-producing areas. In effect it will function as a special committee, which for the present has two working groups, a testing and sampling committee and a measurement committee. Other committees will be formed as subjects demand study. Subjects already planned for study include, high-pressure-gas transmission, sub-surface-flow conditions, methods of removal of salt and hydrogen sulphide from gases, and entrainment in high-pressure gas streams.

C. P. COLLINS, formerly vice president and assistant general manager of Eastman Oil Well Survey Company, has been appointed vice president and general manager with offices in Dallas. Albert G. Pabst, formerly division manager, Texas Gulf Coast Division, has been appointed vice president in charge of sales and public relations with offices in Dallas. H. G. Livingston, formerly division manager, Louisiana Division, has been appointed division manager, Texas Gulf Coast Division, and will be located in Houston. W. G. James has been appointed division manager, Louisiana Division, and will be located in Lafayette.

C. J. HAAS, Adams Oil & Gas Company, Centralia, Illinois, has been elected chairman of the Illinois Basin Chapter of the American Petroleum Institute's Division of Production. Other officers are: E. J. Reading, Sun Oil Company, Evansville, Indiana., first vice chairman; J. D. Sanford, Rockhill Oil & Gas Company, second vice chairman. New members of the advisory board include: H. F. Sackett, Fisher Oil Company; W. I. Lewis, drilling contractor; J. B. Whisenant, Whisenant & Trenchard; Anthony Keating, drilling contractor; A. H. Bell, state geological survey; and Max Sherwood, Shell Oil Company.

GEORGE C. HESTER, Southwestern University professor, will discuss "Fitting State and Local Governments to Present Day Needs" before the Texas Mid-Continent Oil and Gas Association convention at Beaumont October 9-11. Hester is a former Texas legislator. He has written numerous articles on Texas government.

N. H. WEBER, vice president of The Pure Oil Company with headquarters at Chicago, was reelected president of the National Petroleum Association at the annual meeting of the association in Atlantic City last week.

JOHN H. WATT, land man in Shreveport office of Arkansas Fuel Oil Company, has been transferred to same position in Houston office.

RAY P. TENNES, for 7 years director and secretary-treasurer of Shafer Bearing Corporation, Chicago, has been elected chairman of board of directors, succeeding his father, the late M. J. Tennes. In addition to his position as chairman, Tennes will continue as treasurer. W. L. Kinnaw, comptroller, has been elected assistant treasurer and assistant secretary. M. J. Tennes, Jr., president of the corporation, is on leave of absence serving as captain in the Army Air Corps. J. F. Ditzell is vice president and general manager.

COLONEL E. O. THOMPSON expects to return to full-time duties with the Texas Railroad Commission of which he is chairman, upon his retirement from army service on November 11.

OLIN G. BELL, production geologist for Humble Oil & Refining Company, addressed the Derrick Club, Houston, September 18 on "Production Geology."

A. I. LEVORSEN will speak before the symposium presentation, "Frontiers of Knowledge in the Geologic Science," University of Chicago, September 25-26.

T. C. JOHNSON, pioneer oil operator of Kansas, died in Wichita. Johnson was an early proponent of proration as a means of obtaining conservation of reservoir energies.

GORDON T. LEPLEY has been appointed district representative in Texas for Darling Valve & Manufacturing Company. He succeeds F. C. Cavenagh who recently resigned after 20 years with the company.

WILLIAM HELDMAR has been appointed assistant division sales manager of Oil Well Supply Company's Midwest Division. He will headquarter in Tulsa and supervise all sales activities in Oklahoma and Kansas. Heldmar has a wide acquaintanceship throughout the Mid-Continent oil fields, having been in the supply business for the past 20 years. E. E. (Ned) Robbins, formerly manager of Tulsa sales, has been appointed assistant to division sales manager of "Oilwell's" Midwest Division. He will continue his sales activities in Tulsa, where he has lived for many years, and in addition will cover other territory in Oklahoma and Kansas.

William Heldmar

E. E. Robbins

O. L. ELY, formerly with Phillips Petroleum Company, Amarillo, Texas, has moved to Tulsa to accept the management of the traffic department of Anchor Petroleum Company.

CECIL HAGEN, Houston consulting geologist and engineer, has returned from Havana where he made some geological surveys in Cuba.

W. M. ANGLE, former geologist with Standard Oil Company of Kansas, is now associated with Ginther, Warren & Ginther, Houston oil operators.

HAROLD J. STEIN, 47, director of research, chemistry and metallurgy, for Allis-Chalmers Manufacturing Company, Milwaukee, died September 9. Stein directed these activities since 1939, when they were consolidated into one department. He came to the company as an apprentice in 1916, served in various manufacturing departments and was in turn made general foreman of the heat treating opeartions, assistant foreman of the forge department and later a research engineer. In 1936 he was made chief research engineer of all manufacturing departments.

NEIL STALLARD has been appointed general manager of Valley Pipe Line Company at McAllen, Texas, and also manager of W. R. Davis, Inc.'s pipe line terminal and tank farm at Brownsville. The pipe line is owned jointly by Continental Oil Company and W. R. Davis, Inc.

CHARLES B. BOONE, Gulf Oil Corporation, Houston, has been elected chairman of the Gulf Coast Chapter, American Society of Safety Engineers. Other new officers are R. G. Naul, Paul V. Wilson, William E. Spears, M. C. McDowell, E. J. McAleer, J. E. Niland, Harvey Williams, Charles E. Miller, all of Houston.

FLOYD L. SWINDELL has been appointed Mid-Continent sales representative of Vapor Recovery Systems with headquarters at Tulsa, President Frank V. Long announced at Compton, California. Swindell is a University of Oklahoma graduate, with post-graduate work at George Washington University. His first engagement was with the United States Bureau of Mines at Bartlesville where he was assistant petroleum engineer studying oil-field problems in connection with exploration, development and production.

He was employed 4 years by the United States Treasury Department in the income tax unit as valuation engineer studying oil and gas reserves, determination of depreciation rates, obsolescense of oil-field equipment and valuation of stock.

From 1930 to 1936 he was Kansas-Oklahoma editor and staff representative

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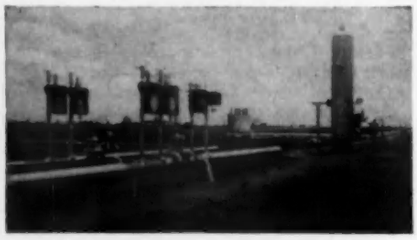

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of The Oil Weekly, making close studies of exploration, development and production equipment and trends and preparing feature articles dealing therewith, as well as market studies, news, statistics and graphical presentations.

Since 1936, Swindell has been engaged largely as consulting engineer and geologist, specializing on field geological work and income tax valuation. He was employed by the Texas Steel Company and Texasteel Manufacturing Company as sales engineer for well equipment in Arkansas, Texas, Oklahoma and Kansas. He was also connected with Buda Engine Sales and Service, as sales engineer selling oil field power.

ROBERT E. KEPKE, formerly in the attorney general's office, Austin, Texas, has joined the legal staff of British-American Oil Producing Company, Houston district.

Well-Head Equipment Makers Form Association

Organization has been completed and headquarters opened in Houston by the Association of Well Head Equipment Manufacturers. Purpose of the association, set forth in the charter granted by the State of Texas July 5, 1941, is "to acquire, preserve and disseminate valuable business information and to adopt rules and standards of classification in equipment where standards and classifications are required, and generally to promote the interest of the trade and increase the facilities of commercial transactions relating to the well head equipment business.

Five committees have been appointed: 1. certified pressure testing; 2. standardization; 3. priorities; 4. service, liabilities, wages and hours; and, 5. supply-store relations. These committees are actively engaged in studying problems that arise under the classifications.

Association officers and directors are G. S. Watson, McEvoy Company, Houston, president; E. L. Lorehn, Cameron Iron Works, Houston, vice president; A. J. Penick, Oil Center Tool Company, Houston, secretary-treasurer; L. L. Rector, Rector Well Equipment Company, Fort Worth; Herman B. Hendershot, Hinderliter Tool Company, Tulsa.

Charter members are E. L. Lorehn, M. T. Works, John H. Moran, G. S. Watson, A. Henderson, A. J. Penick, B. V. Fisher, C. C. Brown, A. S. Baylor, E. L. Barker, Mike Hopper, C. L. Cron and C. J. Harris, all of Houston; T. P. Tschappat and Herman B. Hendershot of Tulsa, L. L. Rector of Fort Worth and A. I. Brainard of Beaumont.

Pioneers to Gather for Spindletop Anniversary

A wildcat oil test will spud in the Spindletop anniversary convention of the Texas Mid-Continent Oil and Gas Association at Beaumont Oct. 9-11.

Using equipment dating back to 1901 when the Lucas gusher blew in to open Spindletop, the test will be spudded as part of the old-timers' celebration of the field's fortieth birthday. A Beaumont committee headed by Scott W. Myers is now collecting the early equipment which will be assembled into a complete rig, similar to those which drilled in the early days of Spindletop.

Manning the rig will be the most famous drilling crew in history. Invitations are being extended to a number of petroleum notables who got their start at Beaumont in 1901 to don overells and gloves again and work a "tour" apiece. Many are expected to accept, including leaders not only in the Texas but also in the national industry who had their first "taste" of oil at Spindletop.

These oil pioneers will be guests of honor at the old-timers' reunion and wildcat jamboree, scheduled October 10 in Harvest Hall. To make them feel at home, the shacktown which sprang up around Spindletop in 1901 will be reproduced as a setting for the party. The early stores, hotels, saloons, toolhouses and the like will be simulated life-size, with their signs bearing names now famous which were first heard and seen at Spindletop.

The old-timers also will take part in the dedication October 9 of the monument to Sprindletop on the site of the Lucas discovery gusher. J. Cooke Wilson, convention chairman for the Texas Mid-Continent meeting and also chairman of the Lucas Gusher Monument Association, will have charge of the program.

Los Angeles Nomads Hear Talks on South America

Talks by six members recently returned from foreign trips were given at the regularly monthly meeting of the Los Angeles Chapter of Nomads September 10. Henry Pullman spoke on the current trends of importance for the American petroleum equipment industry in relation to the war and South American operations. Tom Martin gave his impressions of conditions in Trinidad, Venezuela, Colombia, Ecuador and Peru and Roland Smith discussed the present activity in the same countries. Tom Murphy told of his trip to Canadian fields and T. M. Johnston described humorously what happened to him while making his first trip to Trinidad, Venezuela and Colombia. J. E. Brantly, who has spent much of the last 20 years in various parts of South America, discussed relations between North and South America, pointing out the prospects for wider discovery of oil on the South American continent and bringing out the desirability of developing other natural resources of that continent and the possibilities for greater trade.

Among the guests from other countries were Lionel Wiedey of International Petroleum Company from Talara, Peru; Ed Edwards of the Standard Oil Company of Venezuela; E. Swanberg of Ecuadorian Oilfields; W.H.A. Dalton of Cia de Petroleo Shell de Colombia; K. Calvert of Burmah Oil Company; Howard F. Brewen of International Petroleum Company from Peru; and S. Paul Hart of Mercedes Petroleum Company from Venezuela.

Natural Gasoline Association Meets in Tulsa Next May

The twenty-first annual meeting of the Natural Gasoline Association of America will be held in Tulsa May 13, 14 and 15. The dates are the three days preceeding the opening of the International Petroleum Exposition. Meetings will be held in the Mayo hotel.

Squeaks from the Bull Wheel

Add Words

Messrs. Jonas, Pfleugler and Young of San Antonio Machine & Supply Company are responsible for a new addition to the petroleum dictionary. It is "Potologist: a rig fireman."

Difference of Opinion

"What kinda woman did you get, Mose?"

"She's an angel, dat's what she am."

"Boy, you sho is lucky. Mine is still livin'."

Explanation

"This chair is just covered with dust."

"And why shouldn't it be, ma'am? It's so uncomfortable nobody ever sits on it."

To Be Sure

Surely you know the king's English?

Why, of course. Whoever said he wasn't?

Identification

The recruit was victim of so many jokes that he doubted all men and their motives. One night while he was on guard, an officer loomed up in the darkness.

"Who goes there?"

"Major Moses."

"Glad to meet yuh Moses. Advance and give the ten commandments."

Every Man for Himself

I think Fred wants to propose to our daughter and he doesn't know we are on this balcony. You'd better whistle to him.

Why should I? Nobody whistled to warn me.

Modern Child

Watch and see the birdie.

Pay attention to your exposure or you'll ruin the plate.

Disguise

What do you think would go well with purple and green golf socks, dear?

Hip boots.

Rare Specimen

Miss Periwinkle will now sing, "Oh, That I Were a Dove, I'd Flee."

Dad, what's a dove-eyed flea?

Questioned

"An exclusive vegetable diet would give you a trim figure."

"Did you ever take a good look at a cow?"

Unkind Suggestion

"When I sing, I get tears in my eyes. What can I do to stop that?"

"Try stuffing cotton in your ears."

Exchange

"The same tornado that blew away my father's wagon dumped an automobile in the front yard."

"Huh, that's no tornado. That was a trade wind."

Quite Ordinary

Once, when a company of gallant Highlanders were stationed at Gibraltar, Sandy Macnab was sergeant of the guard, and in due course of duty sent his corporal to make the last relief before 4 o'clock in the morning. Whilst proceeding to one of the outlying posts, the corporal missed his footing, fell over the cliff, and was killed. Meanwhile Sergeant Macnab had been filling up the usual guard report, preparatory to dismounting. At length he came to the final question: "Anything extraordinary occurred since mounting guard?"

Unaware of the accident to his corporal, Macnab filled the query space with the word "nothing." When the Colonel learned of the mishap, and read Macnab's report, the latter was preemptorily ordered to appear before him.

"Macnab," shouted the Colonel, in a black rage, "what the devil do you mean by filling up your guard report in this way? You say 'Nothing extraordinary occurred since mounting guard,' and yet your poor comrade fell over the cliff and was killed."

Sandy was greatly taken aback, but presently pulled himself together, and after deliberating a moment or two, answered coolly, "Weel, sir, I dinna see anything very extraordinar' in that. It would have been something very extraordinar' if he hadna been killed; he fell fowr hunder feet!"

PRIORITY FORMS

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PD-25D PD-83A

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Form PC-25D is provided as a replacement for those who have been using the affidavit as identification for **individual purchases** and who have shown thereon the number of the Order or Certificate assigned a preference rating under which the material covered by that individual order was to be used. For your convenience the new form is a **Customer's Certificate of Defense Requirements** instead of an **Affidavit.**

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NOTES FOR THE Equipment Buyer and User

Turbine Pumps

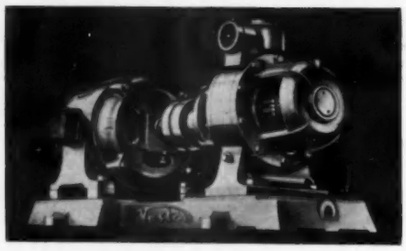
MICRO-WESTCO, INC.

Micro-Westco, Inc., Bettendorf, Iowa, has a new series of single-and two-stage Westco turbine pumps incorporating an improved renewable liner. This feature minimizes shut-down losses and production delays; the liners, forming the liquid channel within the unit, can be easily renewed (along with the impeller), providing stand-by service at about one-fourth the usual cost of a duplicate unit.

The separate liner design also guards against premature obsolescence by permitting the pump capacity and range to be altered, within reasonable limits, in the field. This alteration is accomplished without disturbing the suction or discharge lines, simply by replacing the liners with a different set and slipping a new, matching impeller into position.

Other constructional advantages include double ball-bearing construction, a top discharge, a stainless-steel shaft and free-floating impeller to eliminate seizing caused by extreme temperature variations, extra deep stuffing boxes that reduce the need for frequent repacking, and balanced bearing arms which minimize shaft misalignment.

Designed especially for high-head low-capacity work, these Westco pumps are built not only for conventional service, but in addition, are engineered to meet the many industrial applications requiring high-pressure performance. For example, single- and two-stage pumps, with 5-inch impellers, will develop pressures up to 150 pounds and 300 pounds per square inch respectively at 1750 rpm.



Westco Pump

Couplings

Dresser Manufacturing Company, Bradford, Pennsylvania, has issued a 36-page Oil Field Catalog describing applications for Dresser Couplings and Fittings, ranging from well and separator piping to ship-to-shore lines. It is a two-color handbook for the oil man concerned with pipe-joining and repairs. Index on back cover is designed to make information easy to find.

Cement

UNIVERSAL ATLAS CEMENT COMPANY

Greater insurance against loss and a higher factor of safety in oil well cementing is assured with improved Unaflo oil-well cement, according to recent announcement by the Universal Atlas Cement Company.

In announcing the improved product, the manufacturer states, "just as several years of intensive research led to the development of the original Unaflo, the first retarded oil-well cement, so has continued research in the field and in the laboratory resulted in an even better, safer, more reliable product for oil-well cementing.

"All the original characteristics of Unaflo have been retained in the improved product. These include retarded set, sustained fluidity under high temperatures and pressures, easy pumpability over an extended period of time, heavy slurry, and formation of a dense, impermeable seal."

In addition, "field performance and laboratory tests show that the composition of improved Unaflo is more uniform; the reaction to various types of mixing water is more uniform; retardation of setting time is more uniform;

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By W. H. TWENHOFEL

Professor of Geology, University of Wisconsin

A guide to better understanding of sedimentary products and structure

The professional geologist, and the student, will find this book invaluable in that it will give them an understanding of the significance of sedimentary products and structure that will enable them to understand conditions obtaining during the deposition of the sedimentary materials and the significance of observations in terms of recovering economic products from sedimentary rocks.

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4. Origin of Inorganic Sediments
5. Interrelations of Organisms and Sediments
6. Transportation and Deposition of Sediments
7. Classification of Sediments and Sedimentary Rocks and Minerals
8. The Clastic Sediments
9. Sediments of Chemical Deposition
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11. Sediments of Chemical Deposition: The Carbonaceous Sediments
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and the rate of stiffening is more uniform."

Universal Atlas Cement Company said that these improvements, added to the original characteristics, mean greater protection for the costly investment already made in well, tools, and equipment.

Pressure-Lock Packer

OTIS PRESSURE CONTROL, INC.

A pressure-lock locking device and preset pressure-seal packing elements are two new features used for the first time in a packer by Otis Pressure Control, Inc. Described as revolutionary in design, an announcement says they provide a secure and positive lock and yet are easily removed under most adverse conditions. These features are the result of extensive laboratory and field tests which have proved the many advantages of this tool, it was said.

Pressure-lock locking device consists of only one set of slips; however, the construction is such that a pressure differential in either direction across the packer is utilized to further lock it in place. Consequently, the greater the pressure the more securely the slips "grip" the casing. The slip assembly has eight individual slips with a combined slip area much greater than that of the conventional packer, therefore, the lock is both positive and flexible. One of the most important features of this lock is that neither the weight of the tubing string nor a column of mud in the casing annulus is necessary to hold the packer against upward thrust; consequently, the packer cannot blow out of the hole nor can the tubing drop should the surface connections become damaged. Furthermore, the tubing is always in a freely suspended position. By far, the most valuable feature of the lock is the ease with which it can be released. After the tubing has been pulled up a distance of about 3 feet, the by-pass through the packer opens. Further upward movement of the tubing imparts a jar to the slip mandrel causing it to move out of the slips and permitting them to retract.

Preset pressure-seal packing elements are made of oil proof Neoprene molded and vulcanized to a steel connection ring and re-enforced with a composition fabric cup. The outside diameter of these elements in all cases is approximately 1/16-inch larger than the inside diameter of the casing in which they are run; however, they are designed so that the Neoprene can flow inwardly to eliminate possible wearing and tearing. No mechanically applied force or pressure differential is necessary to cause the packing to expand and shut off. Because the natural shape of the Neoprene affects the seal and it is not necessary to compress the element to cause it to "cold flow," no unnecessary stress and strain are left in the preset elements. This minimizes the vulcanizing of the elements to the casing walls. The flexibility of this packing is best shown by tests which proved they shut off perfectly against pressures ranging from 1 p.s.i. to 7500 p.s.i.

Principal usages of the pressure-lock packer are (1) to hold a column of mud in the casing annulus, (2) for two-zone production, (3) to set 300 feet to 1000 feet below surface to protect well from flowing wild due to damage to surface connections, and (4) for two-zone pumping production.

Integral Chain "Vistand"

ARMSTRONG MANUFACTURING COMPANY

Armstrong Manufacturing Company, Bridgeport, Connecticut, has announced a heavy-duty Vistand with Integral Chain Vise, designed to prevent tipping or tilting. It has spreads of 50 inches in front and 43 inches from front to rear leg.

Armstrong "Vistand"

Platform is 14 inches in both width and depth and has notches and slots for tools around rim. It is equipped with 3 benders, one for ¾-inch pipe and reverse benders for ½-inch and ¾-inch pipe, placed over right front leg to guard against tipping.

Vistand has "dope" pot cast in platform and will hold one pound of thread dope. Three equidistant lugs, cast on rim of oil can recess, prevents can from joggling or slipping off without adding extra weight of deeper rim.

The unit's feet are punched for floor attachment. The vise's teeth are spaced to hold each size of pipe. Each tooth is cut to prevent it from filling with scale. Jaw is heat-treated by patented process and teeth have durable surfaces.

Valve and Meter Companies in New Quarters in Los Angeles

Merco Nordstrom Valve Company and Pittsburgh Equitable Meter Company have moved to new quarters, 3136 East Eleventh Street, Los Angeles, H. Boezinger, vice president in charge of West Coast sales, has announced. The move is the fifth expansion in Los Angeles in recent years.

The companies' location occupies approximately 25,000 square feet of floor space. A modern building has been erected with spur track for shipments from factories to warehouse.

An air-conditioned, temperature-controlled proving department has been in-

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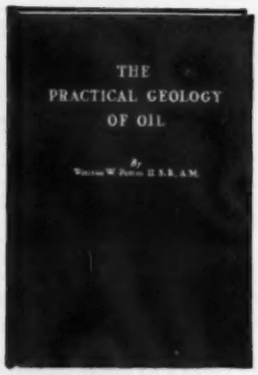

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Martin-Decker Corporation Will Market New Mud Testing Device

Martin-Decker Corporation, Long Beach, California, has recently acquired the exclusive rights for an instrument which for several years has been undergoing field and laboratory tests and which is designed to record automatically the weight and viscosity of drilling fluid.

This instrument is to be known as the Martin-Decker Mud Logger. It was invented by John Hurndall, geologist, and is being manufactured by Petroleum Instrument Company, Los Angeles. It will shortly be officially announced through the trade journals.

pH

National Technical Laboratories, South Pasadena, California, has issued a booklet, "What Every Executive Should Know About pH." (cq) Briefly, pH is described as a measure of the acidity or alkalinity of a substance. Just as the "inch" is a measurement of distance, or a "degree" is a measurement of temperature, a "pH unit" is a measurement of acidity or alkalinity. The booklet is said to be written not only for the executive in the front office but for the executive in the plant and field as well.

V-Belt

Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin, has issued Bulletin B-6190, entitled "More Power to You," a fact revealing story of the new Super-7 V-belt. Presenting points of difference in the latest Texrope V-belt, the 8-page booklet explains how the Super-7 provides more service because of 20 percent more and 50 percent stronger cords, new cushion rubber zone and duplex-sealed cover.

New "Flexon" process of making pulling cords to combine flexibility, strength and low stretch in Super-7 V-belts also is announced.

Flow Meter

The Brown Instrument Company, Wayne and Roberts Avenues, Philadelphia, has issued a new catalog, No. 2204, "Brown Mechanical Meters—Flow and Liquid Level," describing the operating principle and special features of Brown Flow and Liquid Level Meters such as Automatic Recording Planimeter, Automatic Chart Timing and Micrometer Screw Setting.

Pneumatic Control

The Brown Instrument Company, Wayne & Roberts Avenues, Philadelphia, has issued Bulletin 89-14 covering its line of accessories for pneumatic controllers. The bulletin contains schematic diagrams, sizing charts for gas valves, liquid flow valves and steam valves, and table of shipping weights of various items. Descriptions and accompanying dimension tables are provided to make it easy to select the proper valve, diaphragm motor, valve positioner, power cylinder, pressure regulator, compressor or filter.

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